Fitchburg State College

UNDERGRADUATE CATALOG 1984/1985

How To Use This Catalog

This catalog is a guide to the administrative and academic requirements you must meet in order to graduate from Fitchburg State College. You should read the introductory sections carefully and discuss any questions you may have with your advisor or the staff of the Advising Center in Thompson Hall. For specific questions on tuition, grading policy, financial aid, etc., it may be best to visit the appropriate office on campus.

The most important academic use of the catalog is course selection. You must select the courses that meet the requirements of your major and the College's General Education curriculum. Before selecting any courses, read the requirements of your major and then the course descriptions.

After your first week of classes in any course, you should make a decision about continuing in the course. The catalog describes the process of adding and dropping a course and the affect your decision may have on your grade point average and graduation schedule. You should consult the catalog prior to each semester. In your junior year you should review it again to make sure that you are on course to meet all the graduation requirements of your major and the College. Read, consider, discuss, take action. That's how to use the catalog.

Fitchburg State College

UNDERGRADUATE CATALOG 1984/1985

Accredited by:

New England Association of Schools and Colleges.
National Council for Accreditation of Teacher Education.
National League for Nursing.
Council for Human Service Education.

Approved by:

National Association of State Directors of Teacher Education and Certification.
Interstate Certification Compact on Certification of Educational Personnel.
State Board of Registration in Nursing.

Member of:

Fitchburg State College is a member of the American Association of Colleges of Teacher Education, the College Entrance Examination Board, the Association of Colleges of Nursing, The American Association of State Colleges and Universities, American Association of University Women, the International Association of Colleges and Universities, the American council on Education, and the New England Association of College Admissions Counselors, and the American Association of Collegiate Registrars and Admissions Officers.

Affirmative Action Policy:

The College maintains its policy of nondiscrimination and Affirmative Action in fulfillment of the requirements of Executive Orders 11246 and 11375, Titles IV, VI, VII, X of the Civil Rights Act of 1964 as amended. Title IX of the Education Amendments of 1972, 34 CFR Para 106, titles VII and VIII of the Public Health Service Act, Section 504 of the Rehabilitation Act of 1973 and other state and federal statutes. The policy states:

> Fitchburg State College does not discriminate in matters of admissions, employment, or access to its programs or services on the basis of race, color, sex, (including sexual harassment) age, handicap, religious creed, national origin, marital or parental status. Any employee, (or applicant for employment), or student (or applicant for admission), who believes that he/she has been discriminated against on the basis of race, sex, (including sexual harassment), religion, age, color, creed, national origin, marital or parental status or handicap, may utilize the College's complaint procedures, which are available from the Director of Personnel/Affirmative Action, Dr. Thomas Coates, whose office is located on the first floor in the Sanders Administration Building.

Inquiries or complaints concerning the application of, or compliance with the laws and regulations prohibiting such discrimination should be addressed to Dr. Thomas Coates, who has been designated Title VII, VIII, and IX Coordinator (Ext. 3173) or the Office of the Assistant Secretary for Civil Rights, United States Department of Education, Washington, D.C., or with respect to Section 504, Mr. Steven J. Lanciani, Director, Facilities (Ext. 3118) who has been designated Coordinator for Section 504.

Privacy and Confidentiality Regulations:

Privacy and Confidentiality regulations pursuant to the Fair Information Practices Act—F.I.P.A.—(Chapter 776 of the Acts of 1965) are posted, together with a copy of the Chapter 776 and the name of the F.I.P.A. administrator on appropriate bulletin boards at the College. They may also be examined at the Registrar's Office.

Included in these regulations are the following sections intended to implement the law.

I. Intent
II. Definitions
III. Implementation Responsibilities
VI. Security Procedures
V. Maintaining Records of Data Usage
VI. Access to Personal Data
VII. Data Subject Objection
VIII. General Procedures
IX. Enforcement Procedures

Students should note that if any of these regulations should conflict with applicable provisions of the federal Privacy Act of 1974, as amended or of any regulations promulgated pursuant to said act, the provisions of said federal act or federal regulations shall control.

The provisions of this catalog are not to be regarded as an irrevocable contract between the College and the students.

To the College Community...

"The world is kaleidoscopic, ever changing pieces falling into place momentarily to give and fix a world of lights and colors"

Richard Eberhart

As Fitchburg State offers this new catalogue, the kaleidoscope metaphor of Richard Eberhart's poem is brought to mind because this book, offered to a new class of freshmen, is a reminder of how shifting and changing are the patterns of a college campus.

Fitchburg State itself is an old college becoming new. It was founded in 1894 as a Normal School with a new idea: the study of practical arts. Although it remained a single mission college in teacher education for most of its four score years, it began to renew itself in the 1950's when the Nursing Program was added to its curriculum.

Today it is still changing. We are proud of the changes which in the last decade have caused our enrollments to shift from eighty percent in education majors to twenty. We are pleased that we can offer more at a lower cost.

We are proud of this new catalogue with its kaleidoscope of majors and courses and opportunities for a new generation. But, we are equally proud that the gems of tradition, service, concern for quality, and faith in knowledge as the source of a better life continues to move and turn the curriculum at Fitchburg State College, creating a beautiful design today for tomorrow's graduate.

Vincent J. Mara, Ph.D.
President

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The Academic Calendar 1984-1985

Fall, 1984

Sept.	3	Monday	(Labor Day) Residence Halls open for all students—12:00 noon
	5	Wednesday	Classes begin 8:30 a.m.
	19	Wednesday	Final day for dropping/adding courses Fall Academic Convocation—afternoon classes suspended 1:30
Oct.	3	Wednesday	Final day for making up Incomplete Grades from prev. sem.
	4	Thursday	U.S. & Mass. Constitution examination
	8	Monday	Columbus Day—no classes
	31	Wednesday	Final day for withdrawal from classes without penalty
Nov.	12	Monday	Veteran's Day—no classes
	15	Thursday	U.S. & Mass. Constitution examination
	21	Wednesday	Thanksgiving recess begins 3:30 p.m. Residence halls close 5:00 p.m.
	25	Sunday	Thansgiving recess ends; residence halls reopen 3:00 p.m.
Dec.	11	Tuesday	Last day of Fall semester classes
	12-21		Final semester examinations
	21	Friday	Residence halls close 6:00 p.m.

Spring, 1985

Jan.	13	Sunday	College opens; Residence halls open for all students 12:00 noon
	14	Monday	Classes begin 8:30 a.m.
	21	Monday	Martin Luther King Day—no classes
	28	Monday	Final day for adding/dropping courses
Feb.	13	Wednesday	Final day for making up incomplete grades from prev. sem.
	18	Monday	Washington's Birthday—no classes
	21	Thursday	U.S. & Mass. Constitution examination
March	12	Tuesday	Final day for withdrawal from classes without penalty
	15	Friday	Spring vacation begins 4:30 p.m. Residence halls close 6:00 p.m.
	24	Sunday	Spring vacation ends; residence halls open 12:00 noon
April	5	Friday	No classes
	15	Monday	Patriot's Day—no classes
	25	Thursday	Honors Convocation; afternoon classes suspended 1:30 p.m.
May	7	Tuesday	Last day of spring semester classes
	8-17		Final Examinations
	26	Sunday	Commencement 2:00 p.m. Campus Quadrangle

The College

Fitchburg State College is the largest four-year undergraduate college in Central Massachusetts. Its intimate, attractive campus, enthusiastic students, and its tradition of opportunity and excellence are known throughout the Commonwealth. Each year businesses and organizations, familiar with the quality of a Fitchburg State College education, seek out Fitchburg students as candidates for practical internship experience and employment after graduation. This link between the college and the community makes Fitchburg State important to the region, but ultimately it is the character of its people which make it most special.

Founded in 1894 as a Normal School, Fitchburg State College is, today, a medium-sized public institution serving the educational needs of the state and region. In addition, it offers its students and other adult learners an opportunity for Graduate and Continuing Education that is compatible with its undergraduate program.

The academic programs at Fitchburg State College combine a classical foundation in the humanities with progressive, practical, professional majors. Students are challenged to discover the whole person, to develop themselves intellectually, physically, socially and spiritually. "The Fitchburg commitment" means learning to love life and to contribute to it in a useful, memorable fashion. There is no greater goal.

History of the College

The State Normal School in Fitchburg was established in 1894 by an act of the Massachusetts legislature and opened in temporary quarters in the old high school building on Academy Street. Principal John G. Thompson was aided by three teachers, 200 books, and an $11,500 budget for the education of 46 women in a two-year program. In December, 1896, the school moved into its new building and took charge of the Day Street and Highland Avenue city buildings as state schools of observation and practice.

Several years later the Edgerly School was opened on an eighth grade model and practice school and in 1910 it became one of the first junior high schools in the United States. The following year a Practical Arts teacher training course for men, the first of its kind in the country, was instituted. The new course assisted in increasing male enrollment.

In 1932, the school was authorized as a four-year college to grant the Bachelor of Science in Education degree and two years later became State Teachers College at Fitchburg. Over the next decades, many departments such as Special Education, Nursing, and Business Administration were added to the existing education departments, and by 1977 Fitchburg State College was offering thirty degree programs in the seventeen academic departments to its 3,700 full-time students and 3,700 part-time students. The campus now has 93 acres and 23 buildings.

Principles of the College

The College fulfills its mission of public services by striving for excellence in four specific ways:

Dedication to Career Education

The College aims to assist students in identifying their own personal goals and in deciding their careers. To attain this goal the College strives:

To prepare students to meet the needs of society through careers in areas such as teaching, nursing, medical technology, human services, business and industry, and government, among others;

To provide programs preparing students for these careers, including programs geared to new and emerging career fields;

To provide options and opportunities, including field services, which aid students in securing employment; and,

To provide additional training opportunities intended to renew and update persons already holding jobs.

Dedication to the Development of the Student

The intellectual, esthetic, and moral development of students during their college years demands the existence on campus of an attitude or climate suitable to the attainment of this goal. Therefore, the College aims:

To develop a spirit of commitment to learning by stressing high standards of intellectual performance by encouraging scholarly research, by developing the ability to analyze and synthesize knowledge from a variety of sources, and by communicating the conviction that learning is a life-time process;

To enable students to acquire knowledge in areas such as the Humanities, Social Sciences, Physical Sciences, Biological Sciences and Mathematics as well as a depth of knowledge in at least one academic discipline and/or interdisciplinary studies;

To strive for moral development which requires reflection on and self-appropriation of ethical principles as a guide for personal conduct, as a basis for self-esteem, and as an aid to growing in respect for others;

To assist students to recognize the great moral issues of our time, develop respect for all peoples, seek improvement of the quality of human life in areas such as environmental, social problems and other relevant issues of the day;

To establish those conditions which are conducive to an esthetic environment that involves students and faculty in the determination and promotion of cultural activities.

Dedication to the College Community

A paramount objective of Fitchburg State College is the promotion of the welfare of the entire College community. To this end the College has established the following objectives:

To provide a systematic evaluation of present programs, policies, practices, and of all the members of the College community, as well as the regular assessment of needs in conjunction with short, medium, and long-range planning;

To strive for the recognition of and respect for the rights and responsibilities of all members of the College community;

To establish and maintain well-defined and open channels of communication throughout the structure of the College;

To maintain a clearly defined system of governance which calls for active participation by representatives of students, faculty and administrators; and

To encourage individuals in their search for truth and in the honest consideration of ideas both in the classroom and in communications with all members of the College community.

Dedication to the Montachusett Community

The College must acknowledge some responsibility touching on the life of the local, regional, state and national communities. To this end it aims:

To serve as a cultural and intellectual Center for these communities;

To cooperate with local, regional, state and federal agencies in attempting to solve local, regional, state and national social, economic or governmental problems;

To provide for continuing adult education;

To facilitate involvement of students in neighborhood and community service activities; and,

To make the most effective and efficient use of the human, natural and material resources provided by these communities.

Degrees Offered

Fitchburg State College is empowered by the Board of Regents of Massachusetts Public Higher Education to offer the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Science in Education, and several master's degrees.

Bachelor of Arts.
The degree of Bachelor of Arts is offered in the following fields: Biology, Chemistry, English, Geography, History, Mathematics, Psychology, Sociology.

Bachelor of Science.
The degree of Bachelor of Science is offered in the following fields: Biology, Business Administration, Chemistry, Communications Media, Computer Science, Geography, History, Human Services, Industrial Science, Mathematics, Medical Technology, Nursing, Psychology, Sociology.

Bachelor of Science in Education.
The degree of Bachelor of Science in Education is offered in the following fields: Biology, Early Childhood, Elementary, English, Geography, History, Industrial Arts, Mathematics, Special Education, Teacher of Young Children with Special Needs, Vocational Education (Continuing Education only).

Master of Education.
The degree of Master of Education is offered in the following areas of specialization: Arts in Education, Elementary Education, Occupational Education, School Leadership, Science Education, Secondary Education, Special Education. Further information regarding these programs may be obtained through the Office of Graduate and Continuing Education.

Master of Arts in Teaching.
The degree of Master of Arts in Teaching is offered in English. Further information regarding this program may be obtained through the Office of Graduate and Continuing Education.

C.A.G.S. (Certificate of Advanced Studies)

Master's Degrees

M.A. in Teaching (English)
M.S. Communications/Media
M.S. in Computer Science
M.S. in Counseling
M.S. in Management
M.Ed. in Creative Arts
M.Ed. in Leadership and Management
M.Ed. in Elementary Education
M.Ed. in Occupational Education
M.Ed. in Science Education
M.Ed. in Secondary Education
M.Ed. in Special Education
M.Ed. in Generic Education

Graduate and Continuing Education

The Division of Graduate and Continuing Education offers graduate and undergraduate degree programs and courses in keeping with its purpose of providing educational opportunities for professional and scholarly advancement for the people of central New England. The programs serve the life long learners seeking career advancement or change, information, professional or personal growth.

On the Graduate level, the Division offers: Master of Education Degrees in Special Education, Elementary Education, Secondary Education, Industrial and Occupational Education and Educational Leadership and Management.

The Master of Arts in Teaching degree in English, Master of Science Degrees in Computer Sciences, Communications/Media, Counseling, and Management.

The Continuing Education Undergraduate section offers programs of study leading to B.S. degrees in Business Administration with majors in Accounting, Marketing, Management or Labor Relations; Vocational Education, Computer Science, Nursing for Registered Nurses, and Industrial Science.

Inquiries concerning admission and registration procedures for graduate and undergraduate programs may be addressed to the Dean of Graduate and Continuing Education, Sanders Administration Building.

The Curriculum

Each curriculum or program of study provides students with a regulated and structured framework for developing the intellectual skills needed to analyze, to interpret, and to learn from the accumulated knowledge of the past. This framework assists students in revealing the opportunities as well as the problems of their changing world. It encourages a moral awareness of their responsibilities toward maintaining and improving the quality of human life and prepares them for careers which will furnish their lives with meaning and self respect.

The curriculum includes a set of four required courses in addition to 14 courses distributed among the disciplines and courses in the major field of study. The purpose of the former is to provide Fitchburg students with specific skills in good writing and oral communication along with the breadth of knowledge which is earned through the study of many different disciplines. Many of the major programs of the College include a senior year internship or some other form of practical educational experience. Through study in the major field, students accrue the intellectual benefits of depth of understanding and knowledge in one field.

Common Graduation Requirements

The candidate must successfully complete a program including: General Education, a Major, and a minimum of 120 Semester Hours of Credit.

The candidate must attain 30 Semester Hours in residence; normally, these will include the Senior year.

Candidates must satisfy the Constitution requirements of the Commonwealth of Massachusetts. This requirement calls for knowledge of the Federal Constitution and that of the Commonwealth. It may be either:

Passing a written examination on these constitutions. The exam administered by the Social Science Department, is offered at least three times a year; there are no limits as to frequency of taking. A Pamphlet on the exam and a study guide may be obtained from the College Bookstore.

Successful completion of one of the following courses:

HI 210—U.S. History I
HI 220—U.S. History II
PS 100—Modern American Government: State & Urban
PS 200— Modern American Government: The Federal Government
PS 220—Constitutional Law and the Supreme Court

The candidate must attain at least a 2.0 cumulative average in her/his Major.

Candidates for graduation must file an application, no later than February 1 of the year of anticipated graduation, with the Registrar. See the Registrar for the appropriate form.

General Education

An Overview

Required Courses	*Credits*	*Liberal Fields Distribution*	*Credits*
English Composition I and II	6	Math/Science	12-16
Speech	3	Social Science	15
Health and Fitness	3	Humanities	15
Constitution Proficiency	0	*General Education Electives*	6
		Total	60-64

Required Courses

English Composition: EN 100 and EN 120

Speech: There are several courses in addition to Introduction to Speech Communications which satisfy the requirements. See, the Speech section of "Courses and Programs..."

Health and Fitness: There are many choices available to satisfy the requirement. See, Physical Education section of "Courses and Programs..."

Liberal Fields Distribution

Math/Science
This distribution challenge may be met by taking four courses, no more than two in the same field. Options include the field of Biology, Chemistry, Computer Science, Geology, Mathematics, and Physics. For identification of courses available to meet General Education requirements, refer to these fields as listed in, "Courses and Programs..." Note particularly wherein prerequisites are called for.

Social Sciences
This distribution challenge may be met by taking five courses, no more than two from the same field. The option includes the fields of Economics, Geography, History, Political Science, Psychology, Sociology. For identification of courses available to meet General Education requirements, refer to these fields as listed in "Courses and Programs..." Note particularly wherein prerequisites are called for.

Humanities
This distribution challenge may be met by taking five courses, no more than two in the same field. The options include the fields of Art, Literature, Languages (French, German, Spanish, Russian), Music, Philosophy, Speech. For identification of courses available to meet General Education requirements, refer to these fields as listed in "Courses and Programs..." Note particularly wherein prerequisites are called for.

General Education Electives
Choice limited by exclusion of professional career courses in the following programs: Business Administration, Communication/Media, Education, Human Services, Industrial Technology, Military Science, and Nursing. See, "Courses and Programs..."

Restrictions

No more than eight credits in any one field may be used to satisfy the General Education distribution requirements.

No division of credits earned in one course is allowed.

Four semester long courses must be taken to satisfy the Math/Science requirement, hence the anomaly, 12-16 Semester Hours.

Courses used to satisfy General Education requirements may also fulfill Major prerequisites; however, the credits earned towards graduation can not be counted twice.

The various Degree programs and Majors specify in many cases which of the options must be taken. See, "Courses and Programs..."

The Major

The major programs have various requirements in both course work and credits. They range from 33 to 60 credits in length and have requirements in General Education courses as well as the specific major field. The requirements of the 32 Majors constitute a complexity that forbids significant summarization; for details of requirements and options, see, "Courses and Programs..."

Enrollment in a given Major is a formal process. Most students are accepted into a major program upon admission to the College. Other students apply for acceptance to a major after their matriculation. These students must file an application with the Registrar. Some students remain as Undeclared Students through their Sophomore year. They are encouraged to apply for transfer to the major of their choice as early as possible in their college career. Application forms for most majors are available in the Academic Advising Center or from the chair of the individual department.

The Minor

Students are encouraged to study in one or more fields in addition to their major field of study. They may study toward one of the minors offered at the College. The requirements of these minors vary in number of credits and prerequisites although the minimum number of credits for any minor is 15. The requirements for each minor may be found under the individual discipline in the section, "Courses and Programs." A brochure describing the requirements of all minors is distributed to all students each fall. Some minors have limited enrollments. Specific application to the Department concerned is advisable and declaration of the Minor commitment should be filed with the Registrar. Minors are offered in Art, Biology, Business Administration, Chemistry, Computer Science, Economics, English, Foreign Languages (French, German, Spanish), Geography, History Irish Studies, Mathematics, Physical Education, Psychology, Russian Studies and Secondary Education.

Electives

Degree program variations make for differences in the number of credits prescribed for the career specialization. Wherein, requirements met, the candidate is short of the 120 Credits required for graduation, there is room for Electives. These courses may be selected from any discipline.

Special Academic Programs

Internships and Practica

Many major departments offer intensive training programs involving work-study or field work. Student interns are supervised by professors and on-site coordinators. The internship program is available to many upper class students as a part of their major or minor programs of study. Field sites are available in many businesses, industries, schools, social service agencies, newspapers or television stations and hospitals.

Acceptance into the internship program is competitive in some majors such as the Business Administration Internship and is a required part of other major programs such as the Communication Practicum. Students earn from three to 15 credits for their internship work. Students earning three credits work for at least nine hours per week at their placement and those earning 15 credits work for at least 45 hours per week.

Practicum in Communications Media

The Communication Media practicum, both the on- and off-campus experience, is the culmination of the Communications Media major. Students, in the last semester of their senior year, are placed with business, industry, health services, governmental agencies, educational institutions, public organizations or in the Fitchburg State College Community Media Unit. The practicum experience provides each student with the opportunity to apply the knowledge and skills acquired during his/her course of study to the solution of a practical communications problem at the internship site.

Each practicum involves working under the professional supervision of the agency as well as the Department's faculty. The 12-credit hour practicum requires students to spend at least 15 36-hour weeks at their internship site. The 6-credit hour practicum requires 15 18-hour weeks of work at the internship site. In addition, a seminar is held one day and/or evening each month at the College for the purpose of sharing ideas and solving problems.

Participation in either the 6- or 12-credit hour practicum is a requirement for completion of the Communications Media major and subsequent graduation from the College.

English Department Internship

The English Department, through its internship program, offers an opportunity for seniors and second-semester juniors to explore a profession for one full semester of work and credit. English majors can experience a wide range of professional activity in fields such as radio, television, journalism, personnel work, library functions (school, public, or technical), public relations, law, government, human services, and technical publications.

New internship positions are identified each semester. The program has provided an unusually high level of job-entry success for those participating. The internship enables students to apply theoretical knowledge and laboratory-developed skills in an actual professional setting.

Field Work in the Human Services

The Human Services program coordinates supervised field work experience with class work. The field work involves working in an agency under professional supervision either 15 hours a week throughout the academic year or 30 hours a week for a full semester. In addition, all students in the class meet to share experiences and learn about other agencies.

Students have been placed in probation offices, mental health facilities, family and children's agencies, hospitals, nursing homes, special needs centers, welfare offices, recreational settings, etc. These experiences should strengthen the position of students when applying for a job, give them a more realistic basis for choosing a career and give their potential employers an opportunity to screen students as job candidates.

Integrated Creative Arts Teacher Education Program

This is a full-semester experience which includes six weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, integrating art forms and classroom management). Subsequently, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils to foster the pupils' personal expression through creation in the arts.

Intermittent seminars will be held one day a week at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a fulltime basis ordinarily throughout the semester. They will be visited and evaluated by college faculty as well as by cooperating teacher-specialists in the schools.

Integrated Professional Program

The Integrated Professional Program in the Department of Special Education is a program that moves the preparation of special educators from a college-based program to elementary schools in the community. In this setting, students have theoretical, observational, and participatory experiences. When a concept or technique is introduced academically, the students have the opportunity to observe a demonstration in the classroom and to engage in a teaching practice.

The College faculty provide guidance, immediate feedback and further demonstrations. The cooperating practitioner also participates in this experience with the student. The students raise questions based on their academic and participatory experiences and share ideas, problems and learning with other professionals.

This program prepares teachers to meet the educational social needs of students who manifest learning behavior problems in the regular elementary classroom environment.

1. Curriculum and Methodology
   - Math
   - Science
   - Social Studies Career Education
   - Reading
   - Language Arts
2. Identification and Diagnosis of Learning Problems
3. Behavior Management

The college student spends three weeks, 6 hours a day, in an orientation program on campus for course content; 6 weeks, 3-4 hours per day on site at an elementary school for prepracticum experiences; and 7 weeks at the same elementary school in an elementary teaching experience on a full-day basis. This practicum is Student Teaching Level I.

Legal Internship

The Legal Internship Program is a one semester 12 credit hour practicum designed to introduce students to basic legal concept and research tools. A legal intern under faculty and attorney supervision in a law office deals at first hand with the problems of clients. Attention is given to fact-investigation and legal research, preparation of motions, pleadings, trial memoranda and appellate briefs. The internship entails a minimum of 24 hours of work per week in the office and at least six hours of preparation. The offices handle criminal cases and a wide range of civil matters including consumer, administrative, family, welfare, matrimonial and civil rights cases. Enrollment is limited.

Internships in Political Science

Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Students gain an insight into the workings of government administration and politics under the supervision of a political science instructor.

Internships are also available in several regional law offices for those persons interested in para-legal work. These internships prepare students for positions in law offices, public administration, and other human service work. Students normally take this legal internship in their junior or senior year. Credit is for either six or twelve semester hours depending upon arrangements with the Social Science Department.

Internships in Psychology

The Psychology faculty offer an opportunity for the advanced student to perform extensive work in an agency or placement providing psychologically related services. Supervision for the student's work will be provided by both departmental and agency personnel. Students participating in an internship meet weekly as a group to provide maximum exposure to the various placement opportunities available.

Internship in Sociology

The advanced sociology student (i.e., junior or senior) may elect the opportunity to gain direct working experience in a setting providing sociologically related services. The student will be supervised by both departmental and agency personnel and may choose an internship experience providing 6 to 12 credits (one academic credit is provided for each 2 hours of work experience and training). Some of the internship experiences which our sociology students have chosen include: city planning, mental health research, police departments, detoxification centers, prisons, pre-release centers, medical research, family planning, probation, consumer protection research, etc. Prerequisites for the internship include Introduction to Sociology, Social Theory, Basic Skills of Social Research, and Applications of Social Research in the Work Setting. Other courses may also be recommended by the sociology faculty for certain internships. Approval by the sociology advisor is required for any student electing to do an internship.

The Honors Program

The Honors Program provides an enriched, stimulating set of courses for the best prepared and most qualified entering students as well as for top ranking Fitchburg students. Its objectives are:

To provide an integrated set of General Education courses at the freshman level which provides a rigorous and stimulating program to entering honors students. These courses are selected from courses commonly taken in many different major programs. The English composition courses are modified in accordance with the plan of integration.

To offer more advanced courses to currently enrolled students in order to provide them with a high level of proficiency in research and writing skills.

To offer honors students the mechanism by which they may complete a senior honors project in which they can demonstrate research and writing skills.

To provide students with exposure (through the 1 s.h. Honors Seminar) to a wide variety of faculty research projects and areas of faculty expertise and interest.

To provide a set of extracurricular experiences which are culturally enriching and support the course work of the program.

The Honors Program includes four segments, each corresponding to one year in a student's academic schedule.

The freshman program is entitled *Modern Man: An Historical Perspective* and includes an integrated program. During the first semester students study the 19th Century—its movements, concepts, and trends. The specific

studies include English, music and the history of modern Europe. During the spring students study the 20th Century in English, contemporary art, and in post revolutionary Soviet history. Other courses may be substituted for these but, in all cases, they will follow the proposed 19th and 20th Century themes.

Students in all degree programs are required to take freshman English. Thus, the students in the Honors Program enroll in English Composition I. Honors students are able to utilize the program history courses in partial fulfillment of their social science requirement, while the honors art and music courses may be used in partial fulfillment of the humanities requirement.

The title of the sophomore portion of the Honors Program is *Methods of Inquiry.* One course is offered each semester and is selected from courses such as Comparative Economic Systems, Political Systems, Ethics, the Philosophy of Man, and Comparative Religions. Each offering at the sophomore level demonstrates the methods of inquiry which are utilized in the particular discipline being studied.

The second part of the sophomore program includes the Honors Seminar lectures which are organized around a central theme and involve many different topics representing the areas of expertise of the college faculty.

The proposed program for the junior year is both interdisciplinary and thematic. The proposed title for the program at this level is *Contemporary Dilemmas: Ethical, Scientific, Political, and Philosophic.* A junior honors interdisciplinary seminar (3 s.h.) is offered each semester in which students study one or more of the problems facing modern man.

The senior year of the Honors Program is devoted to the research for and writing of an Independent Honors Paper. The topic of this senior Honors Project is selected from those covered in previous honors courses or from the student's major discipline. The student is assigned three credits for each semesters work. Topics for all senior projects must be submitted to the Honors Committee which is composed of several members of the faculty and the Undergraduate Dean.

ROTC and CORP

Army Reserve Officer Training (ROTC) is offered by Fitchburg State College and is available to all male and female students. Physically qualified American citizens who complete the program will be satisfied by a brief three to six month period on active duty for training only followed by participation in an Army reserve component or three years active duty as a leader and manager. Delayed entry on active service for the purpose of graduate schooling is routinely granted. Military Science is designed to complement other instruction offered by Fitchburg State. Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army.

The Massachusetts State Colleges and the Massachusetts National Guard have joined in a cooperative venture (CORP), which links both organizations in an effort to enable students to earn commissions as officers before graduation. As part of this program, National Guard officers conduct free Career Testing and Awareness Workshops on state college campuses. Students can attend these workshops with no obligation, no cost, and acquire valuable job prospecting skills. These workshops also inform students of the CORP benefits such as:

—A commission as a Second Lieutenant in the National Guard before graduation from college

—Free tuition at a state college as part of the benefits that all members of the Massachusetts National Guard automatically receive

—A monthly paycheck for week-end and summer National Guard training

—An opportunity to gain leadership and management skills by attending the Massachusetts Military Academy at Reading. This training is conducted in Massachusetts without interrupting the student's college program.

Students who are interested in becoming part of CORP will first have to pass a battery of physical and mental ability tests which are standard criteria for officer candidacy throughout the armed forces. For information on Career Testing and Awareness Workshops as well as CORP enrollment, contact the Student Affairs Office or the National Guard.

AID Program (Alternatives for Individual Development

The AID program is designated for all students who possess the motivation and academic potential to receive a college education, but have been denied this access because of social, economic, or educational disadvantages. Paramount concerns are recruitment, education, and graduation of these students.

Another function of the program is to provide educational opportunities for those who were graduated from high school some years ago. Counseling and support groups are also available for these students.

Through the recommendation of teachers, counselors or other responsible persons and the recruitment process, students are considered for admission. Appropriate test evaluations and interviews are utilized to determine an admissions decision.

Those students accepted in the program will receive supportive services in developmental reading, English and writing skills, mathematics, study skills and necessary tutoring in academic subjects. Also included in the program are personal and academic counseling, peer counseling, assistance in locating financial resources, and in developing the sophistication and interpersonal skills necessary to succeed in college and life.

Beyond the Classroom: Student Life

At Fitchburg State College, human development extends beyond the classroom and into the total campus environment. The College offers a variety of avenues for self-discovery and expression. It encourages growth—emotional, social, cultural, physical and spiritual—through co-curricular activities.

Fitchburg State students who accept new commitments and added responsibilities and those who choose to become active in campus life find opportunities to establish confident career paths. Often Fitchburg students develop significant, helpful and long-lasting relationships with college faculty, administrators and other students.

Student Rights and Responsibilities

The philosophy behind the Student Judicial System at Fitchburg State College is that student conduct is a personal responsibility. The Student Judicial Code was developed as a cooperative effort among students, faculty, and staff in order to provide a comprehensive listing of College regulations and sanctions and to establish fair processes for dealing with instances of student misconduct. The central focus of the Judicial System is the Student Judicial Board, which is administered by the Student Government Association in conjunction with the Office of Student Life.

College regulations apply on campus and at college-sponsored affairs wherever they may take place. They include federal, state, and local laws as well as rules and regulations conducive to the attainment of the goals of the College. The following are examples of the areas covered by the regulations, although by no means an exhaustive list: academic honesty; false representation; tampering with college records; theft; vandalism or intentional destruction of college property; harassment; physical assaults; possession or consumption of alcoholic beverages or drugs in violation of College guidelines; false alarms; and the possession or use of firearms.

The complete text of the Student Judicial Code is available in the Student Handbook or from the Student Life or Student Government Association Offices.

A student on Disciplinary Probation, Suspension or Expulsion will not be allowed to serve on campus representative committees, hold elected office or appointed campus wide office, or be a member of any intercollegiate athletic team, nor shall he/she be eligible to apply for campus based financial aid during the second semester of a two-semester probation.

Residence Life

Residence Halls

Three campus residence halls and an apartment complex provide housing for more than eleven hundred students while Fitchburg State College is in session. All residence halls are conveniently located within easy walking distance of classrooms, offices, and other centers of student activity on the campus. Holmes Dining Commons is situated adjacent to the residence halls, and provides meals for all residence hall students as well as many students who live off campus.

Aubuchon Hall is a highrise with ten residential floors, each designed for forty people in double rooms. Study rooms and recreational facilities are provided on the first floor. Russell Towers, which opened in the fall of 1971, has thirty-six suites housing eleven or twelve people, arranged with a dozen suites in each of three towers. "Family Style" living is enhanced through the inclusion of a living room and kitchenette in each suite. Herlihy Hall, which was extensively renovated in 1977, is the smallest residence with only one hundred forty-two students on three floors. The town-house style apartment complex provides an additional life style choice for students.

Accommodations for handicapped students are located in the town-house apartments, as well as in the Aubuchon Hall and Russell Towers.

Most residence hall rooms are double rooms. The number of single rooms available is very limited. Larger rooms accommodate three or four residents.

All rooms are provided with basic furnishings such as bed, dresser, desk, and chair. Students must provide their own linen, towels, study lamps, and mattress pad or cover.

Residence Halls are much more than places to sleep. These living centers form a major focal point of campus activity, largely through the efforts of the hall councils and the residence staff. The hall council in each building is comprised of elected representatives of the residents and works to plan activities and promote student interests. All four residence halls also have student and full-time professional residence staff who work to assist students with their personal and social needs.

Residence hall space is extremely limited. Students desiring housing are advised to apply for admission with housing well in advance of the deadline for admission to the college. Questions concerning on-campus housing should be directed to the Residence Life Office, Aubuchon Hall.

Off-Campus Housing

Over two-thirds of the students at Fitchburg State College do not live in the residence halls. A large number live in apartments and rooming-houses in the campus area. The off-campus housing coordinator maintains a listing of available off-campus housing and offers assistance to students who wish to share apartments with other students. The off-campus housing office is located in Aubuchon Hall.

The campus area is convenient to supermarkets, laundry facilities, and shopping. Many students find the off-campus life-style attractive because it affords them the opportunity for increased independence in managing their day-to-day affairs. This "real world" experience helps to prepare them for their post-college life. Off-campus students participate in all campus activities and have their own governing body, the Commuters' Board.

Students who wish off-campus housing assistance or information should contact the Residence Life Office or the Off-Campus Housing Coordinator (Extension 3298).

Student Organizations

Clubs and Organizations

The college encourages participation in student organizations. Through these laboratories for expression, students can develop lifetime skills for achieving personal goals. A multitude of organizations operate on campus offering the student a wide variety of selection. A list of the organizations on campus include:

ACCESS
Accounting Society
Band
Biology Club
Booster Club
Cabaret Singers
Campus Volunteer Action Committee
Cheerleaders
Commuters Board
Computer Science Club
Council for Exceptional Children
Cultural Society for Minority Students
Dancin' Club
Early Childhood Club
Elementary Education Club
Eliminate Nuclear Disaster
Geography Club
History English Club
Human Services Club
Industrial Technology Association
Intervarsity Christian Fellowship
Marketing Club

Med Tech Club
Newman Association
Nursing Student Association
Nursing Honor Society
Outing Club
Programs Committee of SGA
Psychology Club
Saxifrage (Yearbook)
Scrimshaw (Literary Magazine)
Student Government Association
Sociology Club
Special Education Club
Strobe (College Newspaper)
Volleyball Club
WFRC Radio Club
Womens Athletic Association
Women in Business

Fraternities and Sororities
Adelphian Society
Esoteric Society
Fenwick Society
Gaveleer Society
Mohawk Club
Neasylon Society
Phi Beta Sigma
Philodemic Society
Tokalon Society
Zeta Phi Beta

The student organization which provides most of the activities for the college is the Programs Committee. Through its various subcommittees, it provides hundreds of popular and well-attended activities each year including films, lectures, concerts, seminars, coffeehouses, pub entertainment and social activities.

Additionally, the Outing Club and the Campus Center offer and encourage a variety of activities that utilize the environment which surrounds the college. Natural trails provide opportunities for X country skiing, jogging, and observing nature in the New England forest. The city of Fitchburg is surrounded by hills which provide the bicycle enthusiast with some of the most challenging hills in New England as well as rolling, easy rides along streams and rivers which run through the city.

Within a short car ride and often available by organized bus trips, Mt. Wachusett and Mt. Watatic offer some of the best skiing in Massachusetts. River rapids for whitewater canoeing are minutes away from the campus. Mt. Monadnock is less than an hour away offering a panoramic view of New England that stretches from Boston to Mt. Washington and beyond on a clear day. State forests also provide camping, fishing and picnic opportunities that can make free time experiences some of the best recreation experiences in the state.

Student Government Association

The purpose of the Student Government Association (S.G.A.) as set forth in its constitution is:

"...to encourage responsibility and cooperation in democratic self government; to form an official body for expressing the judgments of students and fostering the activities and matters of general student interest; to promote full understanding and cooperation among students, faculty, and administration in order to further the welfare of the college."

All students enrolled as full-time undergraduates are members of the Student Government Association, by virtue of having paid the "Activity Fee." The governing body of S.G.A. is the S.G.A. Council, which is composed of an Executive Board, a Commuters' Board, residence hall presidents and vice-presidents, and the presidents, vice-presidents, and four representatives from each of the classes. Elections are held every spring and freshman elections are held in the fall.

The S.G.A. is the official voice of the students and participates in campus-wide committees, state and national student organizations, in addition to

participation in its own standing and ad-hoc committees. Participation at any level is welcome and encouraged. The S.G.A. also offers a number of services for its members, including programming, copying, and legal advice.

Religious Life

Fitchburg State College students may participate in the services of the many churches, religious congregations and synagogues which are within walking distance of the campus as well as the Newman Center Student Parish which is adjacent to the College. Inter-Varsity Christian Fellowship at Fitchburg State College is a charter member of Fellowship which is represented on college and university campuses throughout the world. Christian Life Community also contributes to religious life at the College.

For many years the Roman Catholic Diocese of Worcester served the spiritual needs of the Fitchburg campus by maintaining a small house on Highland Avenue. The present Center, built with the help of students from the Industrial Arts Department of the College, was the result of a desire to provide a gathering place large enough to accommodate a growing student population.

The building includes a chapel, offices for the three chaplains, a study lounge and a recreation area with kitchen facilities.

Through the efforts of the chaplains the Center attempts to offer a climate in which the students can raise basic questions without fear, a word which is an honest response to the student's individual needs, and a home where everyone can experience the fellowship of a christian community.

Musical Activities

Many opportunities exist for musical performance at Fitchburg State College. The college has a fine 60-piece Concert Band that performs music of all types, ranging from transcriptions of classics to contemporary sounds. The Jazz-Rock Ensemble features big band jazz, rock, and experimental music for stage bands. Small ensemble participation opportunities exist as instrumentalists are available. Smaller groups have included brass, woodwind, and recorder ensembles. For vocalists, the FSC Choir offers the chance to sing a wide variety of mixed-voice choral music.

Educational, Cultural and Social Programs

Campus Center

The Campus Center is designed, organized and administered to meet the co-curricular needs of the College community as well as to foster and promote the philosophy of community spirit. Its goals are to maximize the opportunities for human development, provide educational, social, cultural and recreational experiences for the College community, and to provide convenient, economical and satisfactory services to the maximum number of the College community.

The facilities include: an information center, art gallery, recreation room, bookstore, craft center, student offices, meeting rooms, post office, vending services, cafeteria, pub and office of the Alumni Association. All facilities are specially designed for handicapped access. Some programs and services generated from Campus Center funds are: a weekly calendar of campus activities, special events, mini courses from crafts to disco, demonstrations,

recreation tournaments, films, lecturers, video taped entertainment, travel, performing arts, free use of outdoor recreation equipment, and visual art exhibitions.
The Campus Center Resource Office (CCRO) is another service of the Campus Center. Its student professional staff advise and assist student organizations with programming ideas and program implementation. The office maintains complete files and information about the multitude of program opportunities available to students and student organizations. Some of the programs CCRO has presented include leadership training, contract assistance for programs, workshops about leading volunteer groups, as well as helping with the production of films, lectures, the performing art series, visual art exhibits, and special events.

Student Activities

Complimenting the Campus Center, CCRO and the numerous student organizations which provide for many of the activities for the College is the Programs Committee of the SGA. Working with its various sub-committees it provides hundreds of popular activities each year. Included are regular feature films, lectures, concerts, seminars, coffee houses, Pub entertainment and other numerous social activities.

Sports and Recreation

The Department of Athletics at Fitchburg State College, supported by the athletic fee, offers each student an opportunity to participate in activities at the varsity, intramural and recreational level in order to develop the person first, student second, athlete third and the champion fourth.

Intercollegiate

The men's programs include competition in cross country, indoor track, spring track and field, football, soccer, tennis, basketball, ice hockey and baseball. The women's programs consist of teams in cross country, indoor track, spring track and field, field hockey, tennis, volleyball, basketball and softball. These sports have enjoyed national and regional recognition as highly competitive NCAA Division III teams. Many student-athletes have been recognized for their athletic achievements being named to various All-American and All-New England teams.

Fitchburg State College is a member of the Massachusetts State College Athletic Conference, the National Collegiate Athletic Association, Eastern Collegiate Athletic Association, New England Athletics Congress, New England Athletic Conference, Massachusetts Association Intercollegiate Athletics for Women, United States Women's Track Association, Northeast Field Hockey Association, United States Field Hockey Association, the Northeast Women's Intercollegiate Hockey Association and Amateur Athletic Union, which entitles successful Fitchburg teams to participate in tournament and championship play at the Division III level.

For the purpose of athletic eligibility "satisfactory progress toward a baccalaureate degree" shall be defined as successful completion by the student of 24 semester hours of course work prior to entering his/her third full time semester; 48 semester hours of course work prior to entering his/her fifth full time semester; 72 semester hours of course work prior to entering his/her seventh full time semester. Full time or part time status

shall be determined at the end of the ADD/DROP period. Exception to the above may be made on the Petition for Waiver Form available through the Office of the Undergraduate Dean.

Intramural/Recreation

An active intramural program offers the opportunity to all students to participate in a wide range of sports in an atmosphere that stresses sportsmanship, fun and enjoyment. Team and individual competition is offered in such sports as volleyball, basketball, bowling, ice/street hockey, football, soccer and ultimate frisbee. All full time students are members of the Women's Athletic Association/Men's Intramural Board. These organizations are responsible for providing intramural sports as well as other recreational activities such as ice and roller skating, splash parties, tennis and badminton tournaments, racquetball nights, open gym/weight room and any other activities suggested to and by W.A.A. and M.I.B.

Facilities

Parkinson Gymnasium contains the weight room for training and conditioning purposes and the Office of the Certified Athletic Trainer. Outdoor facilities for the athletic programs, located at the Robert G. Eliot Complex on Pearl Hill Road, includes fields for soccer, football, field hockey, baseball and intramurals; chem-turf track; tennis courts; and outdoor basketball courts which double for ice skating during the winter season. At the McKay Campus School the gymnasium is utilized for intramural activities and is the location of our new varsity softball diamond. All ice programs are held at the George Wallace Civic Center. The offices of the Department of Athletics are housed in the Anthony Building on the main campus.

Student Services

Career Services

The Career Services Center provides a variety of career development activities for students in their life/work planning. Students are encouraged to increase their self-understanding and effectiveness in making career decisions. The Center provides counseling, guidance, and other assistance important to career planning. Outreach programming in classrooms and residence halls is regularly scheduled. A Career Services newsletter called *The Edge* highlights upcoming activities and information and is published monthly during the school year.

Housed in the office is the Career Resource Center which contains career literature, career resource directories and company literature, among other items. Material in the Resource Center supports one's search for occupational information and is designed to assist in career development.

Job search strategy information is provided to all students seeking work, whether full-time or part-time, permanent or temporary, professional or more entry level. Job vacancy notebooks are maintained which contain local, state, national and overseas openings. Handouts and workshops are regularly provided to address resume and interview preparation. Credentials files are maintained by the Center and on-campus interviews between employers and students are coordinated.

Testing services and consultation are also available to students in the Career Services Center. A vocational development test battery is available

for students who wish to explore their career interests, personality and values. Staff members are available to assist students and other members of the College community in selecting and utilizing tests in research, diagnosis, and evaluation.

Several national programs of standardized testing are administered through the College: Graduate Record Examinations; College Level Examination Program (CLEP); Miller Analogies Test, and Medical College Admissions Test. The Center is open from 8:30 a.m. to 5:00 p.m. weekdays, and is located on the third floor of the Hammond Building on campus. Students may stop in to use the resources or make appointments by telephoning 345-2151, Extension 3151.

Counseling Services

The Counseling Center provides confidential counseling services free of charge. A professional counselor is available for individual personal counseling, group and couples counseling, consultation, and community referrals.

In addition to the professional counselor, ACCESS, a group of peer counselors, are available to talk to students with a variety of college concerns.

The Counseling Center is located in the Hammond Building, third floor. Hours are 8:30 a.m. to 5:00 p.m. weekdays. Appointments can be made in person or by calling 345-2151, Extension 3151.

Health Services

The goal of the student health services at Fitchburg State College is to provide equitable, accessible, quality health care to the student community at a reasonable cost.

The yearly health services fee is utilized in programs of prevention, education and referral, as well as in diagnosis and treatment of illnesses. Such services include blood pressure screening, CPR, annual health fair, and workshops on health care.

Health care is provided through the cooperative and combined efforts of a physician, a nurse practitioner, and a medical assistant.

The Health Service provides treatment for episodic illnesses or injury, with referral to appropriate local hospitals and physicians when necessary. Arrangements can be made through the Health Service for certain types of immunizations and allergy injections.

The Health Service is open from 8:00 a.m.-4:30 p.m., Monday through Friday, and is located in Miller Hall.

New Student Orientation

The goals of orientation at Fitchburg State College are to provide new students with sufficient and complete academic information so that they can make intelligent course selections; to acquaint them with the facilities, programs, and activities at the College; to answer preliminary questions about any and all facets of campus life; to begin providing the students with necessary skills in academic, social, and personal areas to ensure a successful beginning to their college experience; and to assist students with their transition to a new environment by providing time for them to meet other new students and begin forming friendships important to their development as an individual.

The New Student Orientation Program consists of two different phases: during the summer students are invited to participate in a one day on-campus session for the purpose of Academic Advising Course Registration. Just prior to the beginning of school, late August or early September, new students are invited to return to campus for a "New Student Week," an intense three (3) day program.

The "New Student Week" consists of a series of activities designed to give the new students a broad range of information and to introduce them to campus life. Each student receives an information packet containing local maps, answers to frequently-asked questions, and information on campus activities. The students receive extensive campus tours in small groups, which afford them the opportunity to visit offices while in operation and to ask questions freely. Similarly, the students are given frequent opportunities to meet in small groups throughout the program to ask questions and share information and experiences. Representatives of major campus activities meet with students to explain their organizations and recruit members. Special-interest group meetings are held on such topics as study skills, adjustment to college, special needs of transfer students, and housing. Social, recreational, and cultural activities comprise evening entertainment. The students take their meals in Holmes Dining Commons and spend two nights in a college residence hall, giving them an experience in on-campus living. Academic activities during orientation are also numerous. Mathematics and reading skills aptitude tests are administered to each student prior to academic advisement and registration to assist in proper course selection. Each student attends an academic advising session with faculty from his or her department prior to the registration session.

Handicapped Disabled Students

The Student Life Office provides ongoing assistance to disabled students in accessing college programs and services. Disabled students are expected to move like all students through the college offices and classrooms, but from time to time their particular disability may necessitate additional information and accommodation.

Handicapped students are strongly encouraged to participate in a preorientation interview to facilitate their entry experience. Arrangements for this interview may be made through the Student Life Office.

Admissions

General Policy

Fitchburg State College endeavors to offer admission to those students whose high school records and backgrounds offer promise of a successful and satisfying college experience. Each applicant is considered individually, and the decisions of the Committee on Admissions are based on many factors. Consideration is given to applicants regardless of their race, religion or national origin.

Taken into consideration are the high school record, scores on tests administered by the College Entrance Examination Board, recommendations by the high school principal, guidance counselor or teachers, and the extracurricular and outside-of-school activities. Strong emphasis is placed on the high school record and rank in class.

Fitchburg State College supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of its applicants for admission.

Applications are accepted beginning in October. In order to be given consideration the application and all supporting credentials should be received by March 1 for freshmen candidates and April 1 for transfer candidates for fall semester admission. Credentials should be received by December 1 for admission to the spring term.

Applications

It is necessary that applicants to the College comply with the following requirements:

1. An Application Form should be submitted to Fitchburg State College as early as possible during the senior year in high school. Applications may be obtained at high schools or Community Colleges throughout the Commonwealth of Massachusetts or by writing directly to the Admissions transcript of the complete high school record through the first marking period of the senior year should be submitted and should show a minimum of 16 units, preferably in college preparatory subjects. (All students, before entrance to college, must be graduated from high school or offer equivalent preparation.)

2. A transcript of the complete high school record through the first marking period of the senior year should be submitted and should show a minimum of 16 units, preferably in college preparatory subjects. (All students, before entrance to college, must be graduated from high school or offer equivalent preparation.)

3. The College Entrance Examination Scholastic Aptitude Test (SAT) scores and the Student Descriptive Questionnaire (SDQ) must be submitted. The College welcomes the results of the College Entrance Board Achievement Tests. Many candidates present Achievement Tests in English and applicants who expect to continue in a foreign language in college should take an Achievement Test in that language. Other Achievement Tests may be taken in the student's major fields of interest. Note that it is the applicant's responsibility to arrange for the forwarding of the necessary test scores directly to the College from the Educational Testing Service in Princeton, New Jersey. The College code number is R 3518.

4. A recommendation of the applicant from his or her high school principal, guidance officer or teacher, giving evidence of academic interest, ability, and preparation should be sent to the Admissions Office.

5. A resume of activities is required if there has been a time lapse between high school graduation, further schooling, and the application process to Fitchburg State College.

Interviews are not required but can provide the Admissions Committee with helpful information. The College encourages handicapped or disabled students to discuss their situation with an Admissions Counselor so that any possible accommodations can be arranged. Applicants who desire to have an interview or to visit the campus are invited to call the Admissions Office for an appointment.

Fitchburg State College employs a "rolling admissions" policy. Rather than a simultaneous notification of all applicants of their acceptance, the candidates are notified on a continuing basis over a period of several months, beginning in the early part of January for September applicants.

Transfer Students

Transfer students are welcome at Fitchburg State. Only students with satisfactory academic and personal records can be considered. An applicant will be considered as a transfer applicant if he/she will hold more than 12 semester units (18 quarter units) of college credit by his/her planned entrance date.

It is important to recognize that to be eligible for transfer the applicant must have a grade point average of 2.0 or better. A "C" average does not guarantee admission to the College.

Inquiries regarding the length of time required to complete a degree should be addressed to the Admissions Office.

It is the policy of the College that a student transferring from a two-year institution is entitled to transfer no more than the two years of credit (60-64 credits) which constitute the requirement of the Associate Degree program taken as a unit.

The following credentials must be submitted by transfer applicants:

1. Application for Admission.

2. Transcript or transcripts of all previous college work, including a statement of honorable dismissal from the last college attended.

3. A catalogue from the previous college(s) with the courses taken clearly marked.

4. A resume of activities is required if there has been a time lapse between high school graduation, further schooling, and the application process to Fitchburg State College.

Transfer credits will normally be granted for work completed in other accredited colleges which was of passing grade or better. Full credit will be given to transferred courses which coincide with those offered at Fitchburg State. A preliminary credit evaluation will be sent with the student's acceptance letter.

This evaluation is made only after an application has been processed and admissibility has been determined.

The grade point average from the previously attended college is dropped and the grade point average is newly established at Fitchburg State.

A student who has completed the general education requirements of one State College prior to transferring to another State College will not be obliged to meet additional or different general education requirements of the receiving college with the exception of students transferring to the Maritime Academy.

Transfer students exempted from a three-hour Composition requirement in any accredited college or junior college may be exempt from EN 100. No credit is to be given. Students exempted from a six-hour Composition requirement will be exempt from EN 100 to 120. No credit is to be given.

In accordance with the Board of Trustees' policy the following guidelines have been established:

1. Applicants for transfer to any college in the Massachusetts State College system will be evaluated for admission on the basis of their previous college academic record.

2. Whenever possible, degree credit will be granted for course work completed at recognized institutions of higher education. Courses which do not fit the degree program may be counted as fulfilling the open elective requirements of the four-year curriculum. The transfer student will be required to fulfill the same degree requirements as any other student.

3. A student transferring from a baccalaureate level college must successfully complete at least 45 credits as a Fitchburg State College student to receive a degree, which normally must be the senior year.

4. Among equally qualified and eligible transfer applicants, priority in admissions will be as follows:

a. First priority is given to transfer students in good standing from within the State College system.

b. Second priority is given to qualified transfer applicants from Massachusetts Community Colleges.

To be given consideration, all applications should be made to the College by April 1.

New England Regional Student Program

This program enables residents of Connecticut, Maine, New Hampshire, Rhode Island and Vermont to be given admissions consideration for certain academic programs at Fitchburg State College. Applicants selected under this program are granted in-state tuition rates. The main eligibility requirement is that the program of study not be offered in the public colleges of the student's state of residence. For additional information, contact the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111.

International Students

Support for those International Students attending Fitchburg State College is part of the responsibility of the Student Affairs Office. Services offered include: assisting international students in their transition to college, identifying and creating support groups, sponsoring along with the college community cultural awareness programs and assisting students with the necessary paperwork and communications with the United States Immigration Service.

International Students find the Fitchburg State College community a friendly and supportive environment in which to pursue their continuing education.

Campus Visits

The Admissions Staff believes that all applicants should visit the Fitchburg State campus and is, therefore, pleased to offer a variety of visitation programs. Daily student-guided tours will be conducted Monday through Friday at 10:30 A.M., 11:30 A.M., and 2:30 P.M. Saturday Information Sessions will be held on the second Saturday of the months October through April.

The very popular "Fridays at Fitchburg" program will be held on four selected Fridays during the academic year. Information on any of these visitation programs can be yours by writing or calling the Admissions Office:

Admissions Office
Fitchburg State College
160 Pearl Street
Fitchburg, MA 01420
Telephone: 617-345-2151

Expenses and Financial Assistance

Expenses

The following list includes the essential expenses (exclusive of such items as clothing, travel, and entertainment) for which a student would budget for an academic year.

Application Fee (not refundable nor applicable to tuition) $18

Tuition:
In State: $888
Out of State: $2,976
Registration Fee (not refundable but applicable to tuition) $50
Student Activity Fee $36
Athletic Fee $68
Books, Supplies . . . . . Approximately $200
Library Fee $10
Placement Fee (senior only) $5.00
Resident Hall Deposit (Not refundable but Applicable to second semester room charge) $50
Room and Board . . . . . (See item 3, page 18)
Educational Service Fee $20
Campus Center Fee $30
Health Fee $22
Residence Hall Damage Deposit $50
MASSPIRG (optional) $6.00
Orientation Fee . . . . . (one time) $20
Student Teaching and Field Experience Fee (usually seniors only) $75
Insurance (optional) . . . . . Approximately $79

All fees are subject to adjustment by the Massachusetts Board of Regents in keeping with changing costs of operations.

All bills must be paid with either cashiers checks, money orders, bank checks or travelers checks. No personal checks will be allowed.

Application Fee
$18 (not refundable nor applicable to tuition).

Tuition
For residents of Massachusetts: $888 per year—$444.00 per semester.

For non-residents: $2,976 per year—$1,488 per semester.

For persons age 60 or over, no tuition for courses with available seating after tuition-paying students are enrolled.

Room and Board for Resident Students
The cost of board is $860 per academic year for the 19 meal plan; $420 per academic year for the five-day lunch plan, but the room cost depends on the hall to which the student is assigned. All students living in traditional residence halls must have a full meal plan. The maximum charge for room at present is $1,230 annually and is payable in equal installments at the beginning of each semester.

A residence hall deposit of $50.00 is required of all students accepted for rooming in a College residence hall. This payment, not refundable, is credited against the second semester room charge.

Refund Policy
For new students, freshmen and transfer, there is a $50.00 non-refundable tuition deposit. Such deposit shall be credited to the student's first semester tuition charges. If such a student withdraws prior to the beginning of classes a full tuition refund less the $50 deposit will be given. If the student withdraws within the first week of the beginning of classes, two-thirds of the tuition charge shall be refunded. If the student withdraws between the end of the first week and the end of the second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week of classes shall receive no refund.

For returning students: A student who has paid tuition prior to the opening of school and who notified the school that the student will not be attending any class will be entitled to a full refund of all tuition and fees. If the student withdraws between the beginning of classes and the end of the first week, two-thirds of the tuition charge will be refunded. If the student withdraws between the end of the first week and the end of the second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week shall not be entitled to any refund.
Fees are not refundable after the start of classes. Room and Board charges are refundable based upon the occupancy agreement and meal contract respectively.

All costs listed above reflect Trustee policy as of January 1, 1983. Costs may increase if so voted by the Board of Trustees.

Any indebtedness to the College which becomes past due, immediately jeopardizes the student's enrollment, and no such student shall be permitted to graduate or register for a subsequent semester or summer school term. Further, any student who fails to pay all indebtedness to the College may not be issued diplomas, degrees, or other official statements, unless otherwise mandated by law.

Veteran's Education

Fitchburg State College is an approved institution for providing education for the Veteran.

The Veteran must contact the Registrar's Office to establish eligibility and to confirm that all necessary paperwork is complete. Veterans wishing to apply for benefits through the Registrar's Office must bring their:

DD214 Form (notarized copy)
Marriage Certificate
Birth Certificates for each dependent child

The Registrar's Office will provide the Veteran with an Application for Benefits or the Change of Place of Training Form, whichever is applicable.

Veterans are urged to keep themselves informed about benefits available to them through the Veteran's Administration. Information may be obtained from:

John F. Kennedy Federal Building
Veterans Administration—Regional Office
U.S. Government Center
Boston, MA 02203

Vietnam Veterans from Massachusetts are entitled to attend Fitchburg State College on a no-tuition basis. Additional information may be obtained from:

The Commonwealth of Massachusetts
Department of Education
1385 Hancock Street
Quincy, MA 02169

Financial Aid

Fitchburg State College will attempt to award financial assistance to any academically qualified student whose family and/or personal resources are insufficient to meet the College costs. The premise of Financial Aid programs is that parents and students are primarily responsible for meeting college costs. When the costs involved exceed the amount parents and/or students are reasonably able to contribute, financial need exists. Financial assistance is considered a supplement to the family contribution and is based on financial need, which is the difference between the family's resources and the amount of educational costs at the College.

Fitchburg State College administers and coordinates a variety of financial aid programs. Financial Aid is based on need and the availability of funds. It is also contingent upon the student's satisfactory progress in his/her course of study.

For the purpose of Financial Aid, "satisfactory progress toward a baccalaureate degree" shall be defined as successful completion by the student of 24 semester hours of course work prior to entering his/her third full time semester; 48 semester hours of course work prior to entering his/her fifth full time semester; 72 semester hours of course work prior to entering his/her seventh full time semester. Full time or part time status shall be determined at the end of the ADD/DROP period.

Students should begin application procedures well in advance of the term during which they are seeking assistance and should observe the deadline for the various programs for which they apply. Those interested in specific programs or seeking specific or updated information should consult the Financial Aid Office as early as possible for assistance in their financial aid planning.

Applicants for financial aid must be citizens of the United States or permanent residents. A Financial Aid Form (FAF) must be filed with the

College Scholarship Service in Princeton, N.J., and should indicate the code 3518 for Fitchburg State College. Forms are available in either high school guidance offices or in the Financial Aid Office at the College.

Note: Massachusetts residents must use the Massachusetts Financial Aid Form.

Students should file for the Pell Grant Program. In approximately four to six weeks applicants will receive the results from the Pell Grant Program. These should be submitted to the Financial Aid Office for processing with a Fitchburg State College Application for Financial Aid and a notarized copy of parents' and/or students' previous year Federal Income Tax Return (1040, 1040A).

The DEADLINE for submission of the FAF and all supporting documents is March 30.

Below are brief descriptions of the types of financial assistance available at Fitchburg State College. For additional information, please contact the Financial Aid Office to request a copy of the Financial Aid Handbook.

Gift Aid is usually in the form of grants or scholarships and is called "gift-aid" because it does not have to be repaid or worked for.

The following forms of "gift-aid" are available at Fitchburg State College:

Pell Grant (BEOG)

The PELL Grant Program named in honor of the program's sponsor, Senator Pell, was formerly known as the Basic Grant Program (BEOG). It is a federally sponsored entitlement program designed to assist students who have exceptional need. A PELL Grant must be reapplied for prior to every year of undergraduate study.

The PELL Grant is considered to be the "floor" or base of a financial aid package. In many cases, it will be combined with aid from other sources. All students applying for financial aid are required to apply for the PELL Grant.

Massachusetts State Scholarship Programs

The Massachusetts Board of Regents of Higher Education administers seven state scholarship programs for Massachusetts residents. The Massachusetts Information and Instruction leaflet contains all information as well as specific application instructions. The leaflet is contained with the Massachusetts Financial Aid Form (MFAF), available at a college or university financial aid office or a high school guidance office.

All Massachusetts students are required to apply for the Massachusetts General State Scholarship. The maximum award at Fitchburg State College is $400 in an academic year. Students are notified of this award directly from the Board of Regents of Higher Education, Boston, Massachusetts. Awards are based on financial need. Students attending Fitchburg State College or planning to attend may also apply for the following State Scholarship Programs:

*Special Education
Fire, Police, Corrections
Honor

*Students at Fitchburg State College must apply directly to the College for the Special Education Scholarship in this booklet.

Other State's Grants

Students from Connecticut, Maine, Maryland, New Hampshire, the District of Columbia, Rhode Island, Pennsylvania, and Vermont may be eligible to receive a State Scholarship from their respective state. Each scholarship program has varying guidelines and deadlines, therefore, students are urged to contact the state scholarship program in their state for further information.

Tuition Waiver Program

The Tuition Waiver Program estalished by the Commonwealth of Massachusetts is awarded to those students demonstrating financial need. The program is designed for Massachusetts residents. Students awarded a Tuition Waiver would have a portion of the actual tuition cost waived.

Supplemental Educational Opportunity Grant

The Supplemental Educational Oportunity Grant is awarded only to those students with extreme financial need who would otherwise be unable to attend a post-secondary institution.

Awards are limited by the amount the college receives from the government and they must be matched dollar for dollar from another source of aid. This is a federally funded program administered by the College.

Scholarship Programs

Fitchburg State College Scholarships

Institutional scholarships are awarded at various times throughout the year. This process is monitored, and the final decisions are made by the College Scholarship Committee. The scholarship process is publicized in several different ways. Posters with all the necessary information are distributed campus wide (including residence halls). The college newspaper and the Campus Center Calendar both publish the deadline dates. Additionally, the campus radio station informs listeners that applications are available and the date for submission of all necessary materials. The scholarship committee encourages students to apply for the many scholarships.

All students are required to complete a general application form indicating the specific scholarship(s) for which they are applying. The criteria for most scholarship awards is financial need, academic achievement, involvement at the college, and a personal statement. Recommendations are required. Each year the college awards approximately $20,000 in scholarship monies. The scholarships are described in detail below.

The M. Lillian Smith Scholarship ($100.00)
To be awarded to a student pursuing a course of study in Education.

"Buddy McMurray Good Fellowship Award"
Will be awarded to a student whose contribution to the College is positive, salutary, and inspirational of the goals for which they entered Fitchburg State College.

Hammond Band Scholarship ($100.00)
Available to the full-time undergraduate student chosen as the outstanding member of the Fitchburg State College Band.

LeBlond-O'Sullivan Memorial ($100.00)
Available to full-time juniors or seniors with financial need and a record of service to the College.

Parking Scholarships ($300.00)
Made available from fines collected for illegal parking on campus to full-time students who have completed at least one semester and have at least one year remaining at the College.

Performing Artist
This scholarship is awarded to a full time undergraduate student who is an outstanding performing artist.

Special Education ($100.00 to $300.00)
Available to full-time day students who are special education majors and graduates of a Massachusetts high school.

Thomas A. Cardamone Scholarship
Available to a full time student enrolled in any of the Industrial Technology Department degree programs. Financial need and proven leadership skills are required. This award was instituted by Epsilon Pi Tau, Epsilon Chapter, in memory of Thomas Cardamone.

Carl T. Witherell ($300.00)
Available to full-time undergraduate students who are industrial arts majors, preferably members of Epsilon Pi Tau.

Alumni Scholarships
Available to currently enrolled students with demonstrated financial need and/or who are in good academic standing.

Fitchburg Business and Professional Women's Club ($300.00)
Available to full-time women students commuting from Fitchburg, Ashby, Ashburnham, Lunenburg, Townsend or Westminster.

Student Government Association (amounts vary)
Available to sophomores, juniors or seniors with a 2.2 cumulative average and a record of leadership.

The Mattie N. Antila Poetry Award ($100.00)
This is an annual prize awarded to a student at Fitchburg State College for a poem. The award is made possible from Lauri and Signe Sipila in memory of Signe's parents, Matti N. and Fanny P. Antila.

Dorothy Mellinger Scholarship ($300)
Available to a senior special education major who has a cumulative GPA of at least 3.5 and a demonstrated financial need. This scholarship is made possible from Mr. and Mrs. Martin Mellinger in memory of their daughter, Dorothy.

Flora D. Mulholland Memorial Scholarship
This scholarship is available to a Nursing student evidencing high scholastic achievement and a demonstrated financial need.

The Wallace Cunningham Scholarship
This scholarship is awarded to a student evidencing high scholastic achievement and a demonstrated financial need.

The William Devries Memorial Scholarship Fund
This scholarship is awarded to a member of the Fenwick Society evidencing high scholastic achievement and a demonstrated financial need.

Departmental Scholarships
These scholarships offer a work component and experiential opportunity for upper-class students to work closely with the departmental chairperson of their specific discipline. There is no financial need base for this award. High consideration is given to those students of academic excellence and previous departmental service. Applications are available at the Financial Aid Office; however, final decisions are made by each specific department.

Eugene W. Clement Memorial Scholarship
This scholarship is available to a Junior, Special Education major who is making a special effort to achieve academically and has demonstrated financial need.

Michael Vignale Memorial Scholarship
This scholarship is available to a student pursuing a degree in Chemistry.

John McNaney Memorial Scholarship
This scholarship is available to a student pursuing a degree in Chemistry.

Burnham Walker Memorial Scholarship
This scholarship is available to a Senior student who has demonstrated academic achievement and articulated his/her career plans.

Kirkpatrick-Percival Scholarship ($50)
This award is available to an outstanding Senior Psychology major.

The President's Scholars and Honors Scholarships

The President's Honor Scholarships recognize the scholarly achievements of high school seniors and transfer students who expect to enter Fitchburg State College and who have demonstrated excellence in their studies and academic endeavors. The awards are in the amount of $500 each. The Scholarship Review Committee uses the following criteria in making its selection.

High school students must be in the upper 5% of their graduating class. Transfer students must have a 3.75 G.P.A. (Transfer students should have completed a minimum of 30 semester hours.)

Three letters of recommendation.

For renewal students who have received this award must maintain a 3.75 G.P.A. Renewal could be denied for a serious reason.

The President's Scholars are undergraduate students who have demonstrated excellence in their studies and academic endeavors at Fitchburg State College. The awards are in the amount of $500 each. The Scholarship Review Committee uses the following criteria in making its selection.

Sophomore, Junior or Senior status. A minimum of 30 semester hours of work must have been completed.

Three letters of recommendation—at least two of which must be from members of the Fitchburg State College faculty.

Cumulative G.P.A. of 3.75 or above.

Further information may be obtained from the Office of Financial Aid.

Army ROTC Scholarship Program

Army ROTC offers financial aid ranging from $2,500 for two years to over $10,000 for four years. A variety of options are available to include scholarships that pay tuition, books, and certain fees plus $1,000 per year (tax free). Nursing students have special scholarships.

The Army ROTC Scholarship is designated to offer financial assistance to outstanding young people in the four-year Army ROTC program who are interested in the Army as a career. The four-year scholarships are normally awarded prior to the start of the student's first year.

Recipients of Army ROTC Scholarships are required to serve on active duty in the Army for a period of four years, followed by a period of two years in the inactive reserves. Scholarship recipients are expected to enter active duty immediately following graduation, unless the student has been accepted to graduate school, for which educational delays of up to two years are available.

Student Loan Programs

National Direct Student Loan Program

The National Direct Student Loan is a long term, low cost loan, designed for educational purposes. Awards are contingent upon available funds and number of applicants.

The interest rate is charged on the unpaid balance of the loan. All terms of the National Direct Student Loan are stated on the Promissory Note and Truth-In-Lending Statement, copies of which will be provided to those requesting such information, as well as a sample loan repayment schedule. Provisions are available for deferments, postponements and/or cancellations for some specialized areas.

Nursing Student Loan Program

The Nursing Student Loan Program is designed for those students in need of financial assistance to further their education in the field of Nursing.

Visit the Financial Aid Office for more information governing repayment, deferment and cancellations of Nursing Loans and request the booklet "Nursing Student Loans."

Loans are limited by the amount of money the College receives from the Federal Government.

Guaranteed Student Loan Program

The Massachusetts Higher Education Assistance Corporation enables students to apply to local banks and lending institutions for education loans to help meet their educational costs. The Financial Aid Office has a listing of all participating lenders in Massachusetts.

Parent Loans for Undergraduate Students

The Parent Loans for Undergraduate Students (PLUS) program enables parents to borrow for each dependent child enrolled in an eligible college or vocational training program. These loans are an alternative funding source for parents whose dependent children may not qualify for other types of financial assistance.

Emergency Loans

Small loans for unexpected non-college bills may be obtained by students from the Office of the Vice President for Student Services. The loans must be repaid within sixty days. The student must have collateral or show an ability to repay the loan within sixty days or by the end of the semester, whichever comes first. The student should visit the Office of the Vice President for Student Services to obtain additional information on this program.

Employment Programs

College Work Study Program

The College Work Study Program is a federally funded program providing an opportunity for part-time employment on campus for students with financial need. Students may work during the academic year and during the summer. Work Study jobs are offered as part of the student's total financial package. Students will be paid directly for the hours worked on a bi-weekly basis.

Fitchburg State College Employment

In addition to the federal program, the College offers part-time employment on campus to its students. These positions are not open to students who have had their financial needs met by the other programs mentioned above. Students are paid variable rates depending upon the position. Available jobs are posted and students are required to apply directly to the office advertising for help.

Off-Campus Employment Center

The Career Services Center has established a service to help meet the needs of students seeking part-time employment off-campus. This Office, located on the third floor of the Hammond Building, has canvassed the community and organized a substantial listing of part-time employment openings in the area. These include such positions as babysitting, yard work, construction, caring for the elderly, tutoring, repair work, and a variety of other odd jobs. The hours are often flexible and can be geared to your academic commitments.

Academic Services

The College Library

The Fitchburg State College Library, located in the James J. Hammond Building, provides study table, study carrel, and lounge seating on three levels for 1,350 students. It is a comprehensive information center where source materials are available in a variety of formats. The holdings, which comprise curriculum-related subjects and general student-interest materials, include a circulating book collection of 165,000 volumes; 2,306 periodical titles in microfilm and hard copy; abstract and indexing services; the Resources in Education Collection (ERIC), a comprehensive education library retrieval system on microfiche; an expanding Special Collections Department which includes the College Archives, The Robert Cormier Collections, and various other print and graphic collections, and a large pamphlet file. The Fitchburg State College Library also holds a 9,000 volume reference collection; card catalog access to audio-visual information in 10 formats; a children's literature collection; and a record collection of classical, folk, jazz, popular music, and the spoken word for which stereo headsets may be obtained at the Circulation Desk for the listening stations located in the Main Reading Room.

The Skills Centers

Developmental Skills Center

The College maintains a Developmental Skills Center where assistance is available for students who desire to improve their skills in reading, writing, mathematical skills, or general study skills. The Developmental Skills Center is located on the third floor of the Hammond Building and consists of the Writing Skills Center, Mathematics Center, and the Developmental Reading Study Skills Center.

It is the policy of the Board of Trustees that students admitted to state colleges who suffer from serious deficiencies in reading, writing, and mathematics may be required as a condition of attendance to avail themselves of remedial courses and other prescribed help.

The Developmental Skills Center is open from 8:30 to 3:30 Monday through Friday, without charge to all students in the College.

Study Skills Center

Programs offered by the Study Skills Center are designed to meet the individual needs of all students. Included in the Center's programs are enrichment experiences for students wishing to review or sharpen their study skills as well as programs for those students who wish to learn successful college study practices. In addition, students may select a program which highlights a specific study area such as test taking skills, outlining skills, or successful study habits. The Center also offers an intensive program for students wishing to improve their spelling skills. The Study Skills Center makes use of a wide variety of instructional resources including a new computer assisted instruction facility.

Reading Center

Programs offered at the Reading Center are designed to meet the individual needs of all students. Enrichment programs are available for slow readers with good comprehension who want to increase their speeds. Developmental programs, concentrating on comprehension skills, help students understand what they read. Additionally, all students are taught how to adjust their rates of reading to meet their particular purposes. Students may enroll in reading courses any time and select hours convenient to them. One credit is earned upon completion of an individually designed reading program. There is no charge for these programs.

Writing Skills Center

The English Department operates a Writing Skills Center where students may get help at any time for their writing problems. Students are assisted in all stages of the writing process, from prewriting to proofreading and in reviewing conventions of grammar, punctuation, and spelling. Any instructor in the College may refer a student to the Center, and any student who desires assistance may voluntarily apply to the Center. A wide variety of programs and instructional materials are offered to students by the English Department's Writing Skills Center.

Advising Center

In addition to the above, the College provides an Advising Center which is open five days a week during regular college hours for academic advising

and counseling of students, with particular emphasis on students who are undecided about a major, students on probation and students in the bottom 10 percent of their class standings.

Although the Center does not provide advice for specific majors since this role is best filled by the individual departments, the Center will assist students who feel they are not receiving the help they need or who need assistance in emergency situations when departmental services are not available.

College Computer Center

The Fitchburg State College Computer Center is a service department of the College. Facilities are provided to service the administrative, educational and research needs of the campus. The principal unit of equipment in the Center at the present time is a Control Data Computer CDC System 18 Batch terminal which is connected to a Boston-based CDC Cyber-170 computer. There are 24 interactive terminals that are primarily for academic use by students and faculty. The terminals are of two types: CRT (Cathode Ray terminals), terminals with no hard copy, and Printer types, those that do have hard copy for reference. These terminals are located in the Edgerly Building.

Computer usage ranges from the computation of assigned classroom problems to the support of special projects of administrators and faculty. Many students begin to use the computer early in their programs of study and some continue to do so into graduate work. Opportunities to pursue courses of study oriented toward computer science are available and are described elsewhere in this catalog.

In addition to the central computing facility, the Computer Science Department has available a VAX-11 System, DEC PDP-15, Lexidata 8400D Unit Based Industrial Graphics System, 5 LSI-1103's, 2 Motorola Industrial Development Systems, 10 Zenith Micro Computers, 70 Heath ET-3400 Microprocessor Trainers and 20 Heath ET-6800 Assy Language Trainers for hands-on and laboratory use. These systems allow the student to work on design experiments which would be impossible or impractical on the large central computers.

Academic Regulations and Procedures

Engaging with the Programs

Academic Advising

All undergraduates are joined to their programs through a system of Academic Advisors. Declared Majors are assigned to a member of that Department who shall act as the student's guide through the mazes of the curriculum. Undeclared Majors are assigned, on a temporary basis (according to the student's intended major), to such available faculty as the Undergraduate Dean can identify. Each student is encouraged to consult his/her advisor at any time during the semester regarding any problem encountered involving the academic program.

The student must consult with his/her advisor in the matter of Course Registration. Course enrollment may only be arranged and approved through the advisor. By agreement all faculty are available to their students, for class and other adivising, at least three hours a week. These hours are posted at the Department offices and are also available through the Office for Academic Affairs.

Course Registration

Registration for courses is not only a periodic necessity but an educative experience in itself. It teaches balancing of desires with grinding reality. The student, perforce, learns about conflict, attention to detail, and the filling in of OPSCAN forms. In all these experiences the Academic Advisor is a key but not the ultimate authority.

Semester registration involves matching the course desires/needs of the student body with the finite number of course offerings in any one semester. Hours of meetings, numbers already enrolled, as well as prerequisites are factors to be weighed. The student must achieve a program of between 12 and 18 Semester Hours which are acceptable to the Advisor and to the Registrar. These Schedules are subject to student change; incomplete programs may be filled during the Drop/Add period.

All students are bound by the curriculum requirements set in the College Catalog of the year of matriculation. However, the College reserves the right to alter those requirements wherein it becomes necessary in order to meet statutory, educational, or professional standards and quality educational goals.

The Add/Drop Window

A student may add or drop a course(s) during the first two weeks of a semester without prejudice; i.e., without notation on her/his permanent record. The process simply requires the student to secure the signature of the instructor for the course(s) concerned upon so-called Add/Drop cards which are in the possession of the instructor. "Drops" are considered the decision of the student and the advisor.

Overload

A course of more than 18 Semester Hours is an overload. Overloads must be specifically and individually authorized upon forms available at the office of the Undergraduate Dean. This form requires acceptable reasons for the overload and the signatures of the student's advisor and that of the Undergraduate Dean. Students with a cumulative average earned at FSC of less than 3.0 will not usually be authorized to carry an overload.

Changing Majors/Degree Programs

Changing Majors and/or Degree programs is possible while "in courses"; i.e., after matriculation and while embarqued on studies. There are problems; programs have limited enrollment capacities for each undergraduate class; inevitably, the change involves increase of the time required to complete the baccalaureate. In general, the student would begin the process of changing Majors/Programs by consulting her/his advisor and the chair of the new major department. Majors/Programs having defined specific requirements for internal transfer are Business Administration, Communication, Human Services, Nursing, and Special Education. Transfer application forms are available in the Academic Advising Center, Thompson Hall 115, or in the departmental offices.

Withdrawal From Courses, Third to Eighth Week of the Semester

The students may withdraw from courses with the notation "W" on this record up to the eighth week of the semester. Course withdrawals are made upon a form issued by the Registrar. This form requires the signatures of both the instructor concerned and of the faculty advisor. It is the responsibility of the student to secure the form to the Registrar before expiration of the withdrawal period.

There is one limitation upon withdrawal from courses that may be significant for some students. Full-time enrollment status requires that the student carry a load of 12 credits, Eligibility for V.A. benefits, Dean's List Honors, Scholarships, Varsity Athletics, Health Insurance Coverage, Federal Financial Aid, are involved.

Withdrawal From Courses After the Eighth Week

Withdrawal from a course after the eighth week of the Semester, unless documented extenuating circumstances are established, will result in a 0.0 for the course.

Withdrawal From the College

Students who leave the College, either during a semester or between semesters must complete a WITHDRAWAL FORM which may be secured at the Office of Student Services, the Office of Academic Affairs, the Counseling Center of the Advising Center. Students who withdraw within the first eight weeks of the semester will receive "W" in each course. Students who leave the College after the eight weeks will receive "F" grades in all their courses.

Attendance

It is the prerogative of the instructor to place a value upon class attendance subject only to the limitation that the members of her/his classes be informed as to that value early in the semester. The instructor's class attendance standard should be stated in the course syllabus. Wherein acceptable cause for absence can be substantiated, it is recommended that the student show such to the instructors concerned.

Readmission After Suspension

If a student has been suspended from the College for academic reasons, he must remain away from the College for two semesters before requesting readmission. During this time the student must retake the courses which he failed, thereby raising his cumulative average to the minimum required for his class. The academic work completed in the interim is evaluated by the Registrar and the Undergraduate Dean prior to readmission.

A student who is suspended twice for academic deficiencies may not again apply for readmission. Appeals to these policies may be made to the Office of Academic Affairs.

Return After Withdrawal

A student who withdraws from the College in good standing without completing their baccalaureate studies may return to the College upon request to the Registrar. To insure his return at the time desired, the student should take such a request to the Registrar before May 1 for the fall semester or before November 1 for the spring semester.

In determining "good standing" the College will consider academic and social records (College Judicial Board) as well as financial records of the applicant student.

Evaluation

The Grading System

The College Grading System is 4.0, 3.5, 3.0, 2.5, 2.0, 1.5, 1.0, 0.0. In this system, 4.0 equals excellent, 3.5 or 3.0 is good, 2.5 or 2.0 is average, 1.5 or 1.0 is poor but passing, and 0.0 is failure.

The cumulative average standard is derived by multiplying the grades earned in each course by the credits earned for that course; the total of the products obtained for all courses taken are divided by the sum of the credits earned.

The students cumulative average is the basis of the student's academic status; it is involved in all Honors and academic disciplinary considerations.

The Incomplete (INC) Grade

In certain situations wherein a student has completed 80% of the course work but is prevented by illness or an equivalent disability from completion, the instructor may award the grade of incomplete. Incomplete grades must be made-up by the close of the fourth week of the following semester; if not, a grade of 0.0 is automatically entered upon the permanent record. Incomplete grades are not considered in evaluations to determine the student's status.

Make-up of Failed Courses

Wherein the student earns a grade of 0.0 in a course this failure should be made up by retaking the course. On passing of the course, this grade replaces the 0.0 in calculations of the cumulative average, if earned at FSC. The 0.0, however, remains upon the permanent record. A make-up earned at another institution will satisfy the course requirement. The grade earned will not enter into cumulative average calculations, but the original 0.0 will be removed from the cumulative average.

Academic Status

Academic Standing and Satisfactory Progress

A student is in good academic standing provided he/she is not on academic probation. The academic probation schedule may be found under Academic Probation, Suspension and Dismissal.

A student is considered to be full time at the College provided that he or she is registered for a minimum of 12 s.h. of course work. If a student must temporarily drop to part time status due to extenuating personal circumstances and if he registers for less than 12 s.h. of course work, the status of his housing, financial aid, athletic eligibility, health insurance, and eligibility for the Dean's List are jeopardized. Subsequently this student must take additional courses during the summer or through a course overload if he wishes to graduate on schedule with his class.

Any student who wishes to be considered for varsity competition must be a full time student who has been admitted by the Director of Admissions and

is accounted for by the College Registrar. Students who register through the Division of Continuing Education are not regarded as regular full time students of the College.

For the purpose of Financial Aid and athletic eligibility "satisfactory progress toward a baccalaureate degree" shall be defined as successful completion by the student of 24 s.h. of course work prior to entering his/her third full time semester; 48 s.h. of course work prior to entering his/her fifth full time semester; 72 s.h. of course work prior to entering his/her seventh full time semester. Full time or part time status shall be determined at the end of the ADD DROP period.

Exception to the above may be made in the Petition for Waiver Form available through the Office of the Undergraduate Dean.

Academic Probation, Suspension and Dismissal

Class Rank
A student's class rank is determined by the number of credits which a student has successfully completed.

	Credits	*Class Standards*	
Freshman	0-29	Freshman	1.6
Sophomore	30-59	Sophomore	1.8
Junior	60-89	Junior and	
Senior	90-	Seniors	2.0

Failure to maintain the established standard of scholarship means that a student is not in good standing and will result in academic probation or suspension or dismissal. Semester Probation and Suspension—A student will be placed on academic probation at the end of any semester in which he/she falls below the established standard. If that standard is not attained by the end of the following semester, the student will be suspended from the College.

Class Rank	*Probation*	*Suspension*
Freshman (0-29 sem. hrs.)	below 1.6	(two successive terms below 1.6)
Sophomore (30-59 sem. hrs.)	below 1.8	(two successive terms below 1.8)
Junior (60-89 sem. hrs.)	below 2.0	(two successive terms below 2.0)
Senior (90 and over)	below 2.0	(two successive terms below 2.0)

Explanation and Definition
Suspension is normally for two semesters and students are expected, whenever possible, to retake failed courses and/or do satisfactory work at another institution. A student who has been suspended should consult with the Undergraduate Dean and may appeal to the Office of Academic Affairs or readmission.

A readmitted student is automatically placed on academic probation. A readmitted student who fails to achieve a satisfactory grade point average for the first semester after readmission will be permanently dismissed from the College.

A student who fails one half or more of the credits completed in any semester will be placed on probation and must have the permission of the Undergraduate Dean to continue in the next semester.

Cumulative Probation and Suspension—A student will be placed on academic probation at the end of any semester in which his/her cumulative GPA falls below the established standard. If that standard is not attained by the end of the following semester, the student will be suspended from the College.

Class Rank	*Probation*	*Suspension*
Freshman	cumulative GPA below 1.6	two successive semesters of cum GPA below 1.6
Sophomore	cumulative GPA below 1.8	two successive semesters of cum GPA below 1.8
Junior	cumulative GPA below 2.0	two successive semesters of cum GPA below 2.0
Senior	cumulative GPA	two successive semesters of cum GPA below 2.0

Exceptions
Special consideration may be given to transfer students and AID students by the Undergraduate Dean.

Conditions of Probation
A student on Academic Probation, Suspension or Expulsion will not be allowed to serve on campus representative committees, hold elected office or appointed campus wide office, or be a member of any intercollegiate athletic team, nor shall he/she be eligible to apply for campus based financial aid during the second semester of a two-semester probation.

Honors

The President's List honors students for the consistently high academic achievement. The student is named to the President's List when he or she has achieved a semester average of 3.75 or higher for the three successive semesters. However, should the student drop below 3.75 for a semester, even though the cumulative average remains 3.75 or higher based upon previous semesters' achievement, the student is ineligible for the President's List.

Recognition of academic excellence is noted by the Dean's List and the notation of Summa Cum Laude, Magna Cum Laude and Cum Laude at graduation. A student is placed on the Dean's List for the semester if an average grade of 3.20 or better is attained, and the student is attending the college full time.

Graduation honors are noted for recognition of an outstanding cumulative average. A student graduates with highest honor, Summa Cum Laude, if the cumulative academic average is 3.80 or higher. Similarly a student will be graduated with high honor, Magna Cum Laude, if the cumulative average is 3.50 or higher, and is graduated with honor, Cum Laude, with an average of 3.20 or better. To graduate with honors a student must have completed sixty credits at Fitchburg State College.

Each spring outstanding students are recognized at the Spring Honors Convocation for excellence in their major field and overall scholastic achievement.

Roger F. Holmes History Prize
Outstanding Geography Senior
Matti N. Antila Poetry Award for Exceptional Proficiency in Intercollegiate Forensics
Dr. William J. Goldman Award
Communications/Media Student of the Year
Cutler Award for All-Round Student
Purington Award for Craftsmanship
Kirkpatrick-Percival Award in Psychology
Outstanding Academic Achievement Award in Sociology
Outstanding Senior in Biology
Outstanding Senior in Medical Technology
John McNaney Memorial Award
Michael Vignale Memorial Award
ROTC Recognitions
The Grace Gummo Award
The Katherine Sehl Award
The Eleanor Voorhies Award
Christopher Hughes Memorial Scholarship
Hutchinson Award—Outstanding Student in Marketing
Business Laboratory Awards
Outstanding Senior in Early Childhood Education
Outstanding Senior in Elementary Education
Outstanding Senior in Computer Science
Alumni Association Merit Scholarships
Mary F. Burnham Scholarships

Program Alternatives

Double Majors/Double Degrees

A student may earn a baccalaureate degree with two majors at Fitchburg State College by satisfying the degree requirements for both programs. Since only one degree is granted, both programs must result in the same baccalaureate degree, A.B., B.S., or B.S. in education.

A student who wishes to earn two baccalaureate degrees at Fitchburg State College must satisfy the degree requirements for both prior to receiving the second degree. He/she must earn 30 semester hours beyond the 120 semester hours required for his/her first degree and spend an additional two semesters at the College.

Independent Study

Beyond the scheduled course offerings on any semester, there is the possibility of independent pursuit of a narrow area within the specialization. The student initiates this option by requesting a given professor to undertake supervision of such study within that professor's specialization. The decision to authorize Independent Study and credit belongs to the professor and the department involved. Only three credits of Independent Study may be attempted in one semester. If a student wants to attempt more than three credits, permission must be received from the Undergraduate Dean.

CLEP Placement Examination

The primary goal of the College Level Examination Program (CLEP) is to make it possible for an individual to earn college credit on the basis of examinations. CLEP is a program of the College Entrance Examination Board. The CLEP examinations are very useful for traditional and regularly

enrolled students, but they are especially valuable for people whose learning experiences have taken place primarily outside college classrooms.

General Policy: Appropriate credit can be granted on the basis of general and/or individual Subject Examination results. However, a student may not be awarded more than 60 college credits through the CLEP program.

The Career Services Center, located on the third floor of the Hammond Building, coordinates the CLEP program at Fitchburg State College.

Advanced Placement Examination

Students who score 3, 4, or 5 on the Advanced Placement Examination will receive advanced placement and credit in area tested.

College Academic Program Sharing: CAPS

CAPS allows students at Fitchburg State College in good standing who have completed at least one semester at Fitchburg State to attend another of the Massachusetts State Colleges. The purpose of the program is to allow students to enroll in up to 30 semester hours of courses in another state college without going through formal registration procedures. Enrollment as a CAPS student requires the approval of the student's department chairperson.

CAPS affords students in the Massachusetts State College System an opportunity to enjoy a broad educational experience with a wide range of faculty, programs, and facilities. The CAPS program is not open to freshmen. Students interested must file a request with the Registrar prior to the Fitchburg State College registration period.

Student Teaching and Certification

All senior education majors are responsible for checking graduation requirements and certification procedures at the beginning of their senior year. Certification procedures will be discussed at scheduled meetings early in the semester.

Screening policies for student teaching includes:

positive recommendation of a majority of the faculty members in the area of the major and/or specialization,

a demonstrated-effectiveness in oral and written communication as evidenced by use of currently acceptable levels of English,

and the successful completion of the tuberculin test.

The Teacher Education Council requires that each candidate for student teaching possess a 2.00 cumulative index and a 2.50 index in the major field of study, as each department defines "major field." No incomplete in any course is allowed. No probationary status is allowed. No unresolved failure in a candidate's major field nor any course overload during student teaching is permitted.

A student convicted of a felony as defined and identified by the courts of any state is automatically ineligible for a teacher education program.

All transfer students are required to take 12 semester hours from at least three different professors within their respective departments prior to student teaching.

Appeals to any of the above should be directed to the secretary of the Teacher Education Committee.

An incomplete or failure in student teaching necessitates the repetition of the course. Each student must furnish transportation to the teaching assignments.

Courses and Programs in the College

Departments

Behavioral Science
Psychology
Sociology
Human Services

Biology

Business Administration

Chemistry

Communications/Media

Computer Science

English/Speech

Humanities
Art
Foreign Languages
Music
Philosophy

Industrial Technology

Mathematics

Medical Technology

Military Science

Nursing

Physical Education

Physics

Social Science
Economics
Geography
History
Political Science

Special Education

Major Programs

Biology

Business:
Accounting
Marketing
Management
Labor Relations

Chemistry

Communications
Film
Graphic Design
Photography, T.V.
Technical Writing
Computer Science

Early Childhood Education

Elementary Education

English
Literature
Professional Writing

Geography

History

Human Services

Industrial Arts

Industrial Science

Mathematics

Medical Technology

Nursing

Psychology

Sociology

Special Education

Minors

Art

Biology

Business Administration

Chemistry

Computer Science

Economics

Education

English

Foreign Languages
French
German
Spanish

Geography

History

Irish Studies

Mathematics

Physical Education

Psychology

Russian Studies

Art

Assoc. Professors
Elmer Arsenault
Donna Bechis
Robert Fritz

The Minor in Art

The Minor in Art will require a minimum of 15 semester hours. Students should prepare their minor program in close consultation with an Art Advisor. Students will take Survey of Art Forms I or II, Basic Drawing, Design, Introductory Oil Painting and at least one course chosen from Three Dimensional Design, Advanced Painting, Sculpture, the Museum Internship or Art History Course.

AR 100 **3 cr. 3 hr.**
Survey of Art Forms I
A study of architecture, sculpture and painting from ancient Egyptian times to the Renaissance in Europe. Emphasis is placed on understanding style in these various art forms.

AR 120 **3 cr. 3 hr.**
Survey of Art Forms II
A survey of significant styles in the architecture and painting of the Western World from the year 1800 to the present with emphasis upon the special nature of the visual experience.

AR 140 **3 cr. 6 hr.**
Drawing
A studio course which introduces students to the practice of drawing with emphasis upon the description of form through means of line, shade and perspective. Investigation of a variety of media as well as basic stylistic alternatives is encouraged.

AR 150 **3 cr. 6 hr.**
Life Drawing
The basic problems in form and anatomy are studied while drawing from the nude and costumed model. Various techniques and tools are explored including a study of some of the great masters' drawings.

AR 160 **3 cr. 3 hr.**
Design
The basic elements of design will be applied to the creation of two and three dimensional form. Studio work will explore the effect of black and white, color and mixed media on form.

AR 170 **3 cr. 3 hr.**
Three Dimensional Design
Three Dimensional Design concepts as they have been applied historically. Topics covered include form, space, structure, scale, line and color. Lectures, slides, film, museum visits and visual presentations included in course program.

AR 180 **3 cr. 3 hr.**
American Art
A survey of significant stylistic developments in architecture painting and the decorative arts from the earliest colonial times to the present.

AR 190 **3 cr. 3 hr.**
Renaissance Painting
The development of painting in Italy from 1250 to 1550, the age of Michelangelo. The Northern Europe Renaissance from 1400 to 1700 is also surveyed culminating in the Baroque period of Rembrandt.

AR 200 **3 cr. 6 hr.**
Introductory Painting
A study of the basic problems of form, color, and texture as understood in oil paintings. Consideration is also given to the nature and use of the oil painting materials themselves.

AR 210 **3 cr. 3 hr.**
Contemporary Art
Course will consist of active student participation in slide discussions, studio work, and museum and gallery trips. Subject matter will be based on contemporary trends in art dating from the 1960's to the present.

AR 214 **3 cr. 4 hr.**
Ceramics
This course includes throwing on the wheel and glazing techniques with strong emphasis on different sculptural forms. (Credit will not be given for both IT 214 and AR 214.)

***AR 220** **3 cr. 6 hr.**
Sculpture
This studio course explores and teaches the basic techniques and materials applied to the building of 3 dimensional form. Students will learn to conceive, develop, and build sculpture using traditional as well as contemporary methods and materials.

***AR 240** **3 cr. 6 hr.**
Advanced Sculpture
This studio course is a continuation of an expansion upon the basic principles of sculpture, on a more advanced level. Sculpture projects will be geared toward the individual interests and requirements of the advanced student. AR 220 is a prerequisite.

***AR 250** **3 cr. 6 hr.**
Advanced Painting
Accent is placed on the painting of the portrait. Anatomical and formal construction is studied and consideration is given to painterly values of color and texture.

***AR 270** **3 cr. 6 hr.**
Pictorial Design
This course continues where Advanced Painting ends. Emphasis is given to figure painting, both costumed and nude model. The total figure is studied anatomically and in terms of basic forms. Continued study of color and texture problems are pursued.

AR 280 **3 cr. 3 hr.**
Art in Elementary Education
Practice of art as well as observation and discussion of the philosophy of art education in the elementary grades.

***AR 300** **3 cr. 6 hr.**
Museum Internship
Offered jointly with the Fitchburg Art Museum. Emphasis on museum management and particularly the arrangement of exhibitions. Only by permission of advising art faculty. Two art courses, at least one in art history, are prerequisites.

AR 425 **3 cr. 4 hr.**
Crayonstone Lithography
Students print and prepare their stones, develop and transfer their illustrations to the stones, draw and shade on their stones and print their illustrations. (Credit will not be awarded for IT 425 and AR 425.)

AR 490 **3 S.H.**
Independent Study in Art
For selected students, upon approval of both department head and advising instructor.

Biology

Chairman:
Stanley Dick

Professors:
Neal Anderson
George Bond
Stanley Dick
Rose Marie Neunherz
Donald Schmidt
Robert Zottoli

Assoc. Professors
George Babich
Stanley Krane
Alice O'Malley

Asst. Professor
Howard Thomas

Instructors
Benjamin Andrusaitis
Dorothy Boisvert
Gina Semprebon
Sheila Steele

B.S. and B.A. in Biology

All students in either the Bachelor of Science or Bachelor of Arts programs in Biology are offered a required core sequence of the following courses:

BI 140 General Botany
BI 160 General Zoology
BI 230 Ecology
BI 280 Genetics
BI 430 Cell Biology
BI 400 Developmental Biology

The philosophy behind this Core Curriculum is to provide a nucleus of fundamentals upon which students can build and expand in a variety of elective and specialized directions. Twelve semester hours of additional biology electives at or above the 200 level are required of biology majors. They may be chosen in one area of specialization. These specializations can be developed, in consultation with a faculty advisor, into individualized informal academic career tracks, such as: Environmental Science; Plant Science; Animal Biology; Medical Physiology; Molecular Biochemistry; Exercise and Sports Science; Aquatic Biology.

The B.S. or B.A. in Biology degrees both require the following additional courses in related sciences:

CH 110/CH 120
General Chemistry I and II
CH 200/CH 210, or
CH 240/CH 250
Organic Chemistry I and II
PH 110/PH 120
Introductory Physics I and II

Two courses in mathematics at or above the level of MA 130, Elementary Functions

Since not all advanced elective courses in Biology are offered in any one academic year, Biology majors are urged to consult closely with their adacemic advisors to design in advance a suitable selection and sequence of both required and elective courses.

The B.S. in Biology, in addition to all the above requirements, requires foreign language proficiency at the second year college level.

B.S. in Education, Secondary Biology

The Bachelor of Science in Education, secondary, in Biology can be obtained by fulfilling all the requirements for the B.S. in Biology plus the following additional professional courses:

BI 488
Biology Teaching Methods
BI 386, 387
Biology Student Teaching (12 semester hours)
PY 110/230
General Psychology/Adolescent Psychology
PY 275
Tests and Measurements
EN 470
Teaching Writing to Secondary Students
ED 301
Successful Practices in Secondary Education

B.S. in Biology Environmental Science

The Bachelor of Science in Biology Environmental Science includes all requirements of the B.S. in Biology. Additional requirements are:

ES 100
Seminar in Environmental Science
ES 480
Internship in Environmental Science

Three semester hours of electives in Environmental Science
Six semester hours of Earth Science or Geology
Three semester hours in Computer Science

Recommended for specialists in Environmental Science are: that the General Education social sciences requirement be partially fulfilled by courses in Geography, Macroeconomics, Environmental Law and Urban Planning; and that courses in Photography, Drawing, Ethics, and Technical Writing be used to fulfill the General Education humanities requirement.

A Minor in Biology

The minor in Biology will provide a means by which students can include and

demonstrate in their academic record evidence of a substantial and coordinated subsidiary expertise in biological sciences.

The minor in Biology requires a minimum of 18 semester hours of course work in the area distributed as follows:

A. One year (6 semester hours) of entry-level Biology sequences

BI 100/BI 110
BI 100/BI 110
Life Science I and II, or
BI 120/BI 130
Anatomy and Physiology I and II, or
BI 140/BI 160
General Botany and General Zoology
B. BI 280
Genetics

C. Nine semester hours of 200-, 300-, or 400-level courses selected after consultation with a minors advisor in the Biology Department. These upper-level courses should emphasize one of two possible tracks: 1) ecological-organismic or 2) biomedical-molecular.

BI 100 **3 cr. 4hr.**
Introduction to Life Science I
The course focuses on the history, philosophy and content of biology as a science. Laboratory work includes experiences that emphasize problem solving by the student. Primarily for the non-major. 2 hrs. lecture, one 2-hr. lab per week.
Offered: Fall semester.

BI 110 **3 cr. 4 hr.**
Introduction to Life Science II
Continuation of BI 100. 2 hrs. lecture, one 2-hr. lab per week.
Offered: Spring semester.

BI 120 **3 cr. 4 hr.**
Anatomy and Physiology
Structure and function of the human organism on the cellular, tissue, organ, and system levels. Cellular metabolism, histology and the following systems: skeletal, muscular, and nervous (including the special senses). The laboratory emphasizes both physiology and the dissection of preserved mammalian specimens. 2 hrs. lecture, 2 hrs. lab per week.
Offered: Fall semester. (Not open to students who have completed BI 240, Human Biology)

BI 130 **3 cr. 4 hr.**
Anatomy and Physiology II
A continuation of BI 120. The following systems are covered: circulatory, breathing, digestive, excretory, endocrine and reproductive. 2 hrs. lecture, 2 hrs. lab per week.
Offered: Spring semester. Prerequisite: BI 120. (Not open to students who have completed BI 240, Human Biology)

BI 140 **3 cr. 4 hr.**
General Botany
The structure, physiology and life cycles of the algae, fungi, bryophytes, ferns, gymnosperms, and angiosperms. Relationship of plant biology to agriculture and medicine are also discussed. Laboratory involves study of life and preserved plant materials, simple physiological experiments and plant growth project. 2 hrs. lecture, 2 hrs. lab per week.

BI 150 **1 cr. 1 hr.**
Seminar in Modern Biology
Discusstion of current topics in basic and applied biological research based on readings of original scientific reports. Each student is expected to prepare one brief presentation on a topic of his or her choice.

BI 160 **3 cr. 4 hr.**
General Zoology
A course designed to acquaint students with basic zoological concepts. Emphasis will be placed on such topics as: scientific method; cell and structure and function, structure and function of tissues, organs and organ systems, evolution and a general survey of the principle phyla of the animal kingdom. 4 hrs. lecture laboratory field trips per week.

BI 181 **3 cr. 4 hr.**
Science in Elementary Education
Content, methods, and resources suggested by curriculum groups are examined and experiences developed that exemplify current thinking in science education. Recommended only for majors in Education.

***BI 220** **3 cr. 4 hr.**
Plant Physiology
Individually paced integration of plant structure and function emphasizing physiology of the integrated plant: water relations; transpiration and translocation, mineral nutrition, photosynthesis, respiration, growth hormones, differentiation and morphogenesis. 2 hrs. of conference, 2 hrs. lab per week, plus additional hours.
Offered: Fall semester (alternate years).
Prerequisites: BI 140 and General Chemistry.

***BI 230** **3 cr. 4 hr.**
Introductory Ecology
Survey of major ecological concepts and methodology as a basis for further investigations of the dynamic relationship between organisms and their environment. Field and laboratory work emphasize problem identification, formulation of hypothesis, data collection, and analysis and interpretation of results in terms of their biological implications. 2 hrs. lecture, 2 hrs. lab field trips per week.
Offered: Fall semester.
Prerequisite: BI 100 or 140 or 160 or permission of instructor.

BI 240 **3 cr. 3 hr.**
Human Biology
Anatomy and physiology of the cells, tissues, organs and organ systems of the human organism and their functional interrelationships. (Intended primarily for students who are majoring in Biology or Medical Technology) 4 hrs. of lecture lab demonstration. (Not open to students who have completed BI 120 130).

BI 245 **3 cr. 3 hr.**
Nutrition
Examination of nutrients in foods and their metabolic role in normal nutrition. Emphasis will be on energy sources and utilization, vitamins and minerals, nutritional requirements in relation to the changing demands of life, and the effect of food handling and processing on the nutrient content of food. Lectures, discussions and personal nutrition projects.

***BI 250** **3 cr. 4 hr.**
Histology
Systematic survey of the basic animal cell and tissue types, followed by in depth microscopic study of the major organ systems. Practical work includes histological microtechnique on normal and pathological specimens. Lecture lab demonstration, plus some additional time.
Prerequisite: BI 160 or BI 240 or BI 120 130.

***BI 255** **3 cr. 3 hr.**
Social Biology
An exploration of the biological and cultural evolution of man and how that evolution has developed or caused specific societal problems. A study of the biological explanations for and possible solutions of these problems. 3 hrs. of discussion per week, 1 hr. independent study.
Prerequisite: 6 semester hours Introductory Biology or equivalent.

BI 260 **3 cr. 3 hr.**
Conservation and Human Ecology
An introductory exposure to applied ecology, primarily for non-majors, intended to develop a disciplined sensitivity to human environmental interactions. Individual projects will require the identification of specific conservation problems in local communities, their sources, and proposals of practical means for their solution. 3 hrs. lecture lab per week.
Offered: Fall semester. (Alternate years)

***BI 270** **3 cr. 4 hr.**
Survey of Micro-organisms
Introduction to the biology of major groups of microorganisms: bacteria, viruses, protozoa and fungi, their role in nature and their relationship to man as agents of infectious diseases. Laboratory emphasizes principles and practices of aseptic techniques and diagnostic identification and culture of disease entities. 2 hrs. lecture, 2 hrs. lab per week, plus some additional time.
Offered: Spring semester. Prerequisites: BI 130 and Introductory Chemistry or permission of Instructor.

BI 280 **3 cr. 4 hr.**
Genetics
Basic principles of biological information processing: Mendelian inheritance; sex determination; chromosome cytogenetics; linkage, recombination and genetic mapping; mutagenesis; molecular genetics and gene-enzyme relationships; population genetics and quantitative inheritance. Laboratory work includes study of mutational effects and analysis of crosses in maize, drosophila, bacteria, viruses and man. 2 hrs. lecture, 2 hrs. lab per week, plus some independent project work.
Prerequisite: BI 140 or BI 160.

***BI 290** **3 cr. 4 hr.**
Marine Biology
Investigation of the distribution of the dominant animals and plants in a salt marsh, sand beach, tide pool, and rocky intertidal area. Data on physical and chemical factors of these habitats will be correlated with the composition, behavior and physiology of the flora and fauna of each habitat. 4 hrs. of lecture lab field work per week, plus some additional hours.
Offered: Fall semester (alternate years). Prerequisites: BI 140, BI 160 and permission of Instructor.

***BI 300** **3 cr. 4 hr.**
Parasitology
The morphology and diagnostic identification of representative groups of parasitic protozoa, helminths and arthropods, and their functional lifecycle and pathogenic relationships to animal and human hosts. Epidemiology, pathology and control and treatment of important parasitic diseases. 2 hrs. lecture, 2 hrs. lab per week.
Offered: Spring semester (alternate years). Prerequisite: BI 160; BI 440 recommended.

***BI 310** **3 cr. 4 hr.**
Ornithology
An inquiry into the life of birds. Emphasis is on correlation of structure, function and behavior. Laboratory studies of external characters, anatomy and criteria for identification. Optional field trips. 2 hrs. lecture, 2 hrs. lab per week.
Offered: Spring semester (alternate years). Prequisite: BI 110 or BI 140 or permission of Instructor.

***BI 315** **3 cr. 4 hr.**
Ichthyology
The study of the classification, ecology and physiology of the fish common to Massachusetts. Both marine and freshwater species will be covered, with field collecting trips planned. Class time will be divided between lecture and laboratory work.
Offered: Fall semester (alternate years). Prerequisite: BI 200 and BI 230, or permission of Instructor.

***BI 320** **3 cr. 4 hr.**
Invertebrate Physiology
An experimental course designed to acquaint students with the physiological activities of invertebrate animals. Experiments are conducted on feeding and digestion; respiration and circulation; osmotic regulation and excretion; nerve reception and responses; effectors; and conducting systems. Lecture lab demonstration.
Offered: Fall semester (alternate years). Prerequisite: BI 160.

***BI 330** **3 cr. 4 hr.**
Entomology
Anatomy, habits, life histories and identification of insects and some related anthropods. Labboratory work includes preparation of a representative collection of adult and larval forms

from terrestrial and aquatic environments with emphasis on techniques for identification of these forms. 4 hrs. lecture laboratory, plus additional hours for field trips and identification.
Offered: Fall semester (alternate years). Prerequisite: BI 160 or permission of Instructor.

BI 340 **3 cr. 4 hr.**
Limnology
A study of fresh waters and their inhabitants: survey of protists, invertebrates, vertebrates and plants collected from local waters and their ecological interrelationships as determined by biological, physical and chemical parameters. 1 hr. lecture, 3 hrs. lab field trips per week.
Offered: Fall semester (alternate years). Prerequisites: BI 140 and BI 230 or permission of Instructor.

BI 350 **3 cr. 5 hr.**
Plant Taxonomy
Classification of higher plants in accordance with evolutionary principles and trends. Laboratory is devoted to the techniques of plant identification with emphasis on the terminology and use of botanical keys. Field trips for collecting representative elements of the local flora and preparation of an herbarium. 1 hr. lecture, 4 hrs. lab per week, plus some independent project work.
Offered: Fall semester (alternate years). Prequisite: BI 140 or permission of Instructor.

***BI 360** **3 cr. 4 hr.**
Biology of Algae
Collection and identification of common algae found in the New England area. Emphasis on freshwater forms, but some study of marine algae as well. Distribution of algal species will be correlated with physical and chemical factors in their habitats. Laboratory will include study of algal physiology and reproduction as well as techniques for cultivation. 1 hr. lecture, 3 hrs. lab field trips per week.
Prerequisite: BI 140.

***BI 370** **3 cr. 4 hr.**
Mammalogy
A study of the biology of mammals with emphasis on New England species. Laboratory work will include identification and preparation of small mammal study skins. Field trips will be made to capture and study animals in the field and to museums for access to study collections and habitat groupings of the larger mammals unlikely to be seen in the wild. 4 hrs. lecture laboratory plus additional hours for field trips.
Offered: Spring semester (alternate years). Prerequisite: BI 160 or permission of Instructor.

BI 386 **6 cr.**
Student Teaching in Biology I
Student Teaching Practicum in Biology. Students are assigned to cooperating schools for a semester of student teaching.

BI 387 **6 cr.**
Student Teaching in Biology
Student Teaching Practicum in Biology. Students are assigned to cooperating schools for a semester of student teaching.

BI 390 **3 cr.**
Tropical Marine Biology
A course designed to acquaint students with a variety of tropical marine habitats. Students will be involved in small individual or group projects at a location in the Caribbean for approximately two weeks during the winter intersession. They will be expected to read selected articles during the semester prior to the trip, and on completion, a comprehensive report on the results of their investigation will be required of each individual or group. In addition, each student is responsible for their travel, room and board expenses for the trip.
Offered: Spring semester (including the winter intersession). Prerequisites: Permission of Instructors.

BI 400 **3 cr. 4 hr.**
Developmental Biology
A detailed description of developing embryos from the fertilized egg through

the various stages leading to the adult organism. Current theories regarding the molecular mechanisms underlying cell differentiation and other classic developmental processes is also a major theme of this course. Other topics include regeneration, metamorphosis aging and cancer. Laboratory involves study of development in live sea urchins, birds, frogs and ferns as well as work with prepared slides. 2 hrs. lab per week.
Offered: Spring semester. Prerequisites: BI 140, BI 160, BI 280, or permission of Instructor.

BI 410 **4 cr. 6 hr.**
Biochemistry
Individually paced, mastery-oriented introduction to the chemistry of biologically important molecules and their metabolism and regulation; water, proteins, lipids, carbohydrates, nucleic acids and their components. Laboratory emphasizes manual and instrumentated techniques for isolation, qualitative and quantitative analysis of macromolecules and the kinetics and induction of enzymes. 2-4 hrs. conference, 3 hrs. lab per week.
Offered: Spring semester.
Prerequisite: CH210.

BI 425 **3 cr. 3 hr.**
Endocrinology
A study of chemical integration of physiological processes by hormones and related agents. Discussions include structure and function of vertebrate and other animal endocrine systems, neuroendocrine relationships, and other topics of current interest. 3 hrs. lecture demonstration. Offered alternate years.
Prerequisites: BI 160 and BI 120 130 or BI 240, or permission of Instructor.

BI 430 **3 cr. 4 cr.**
Cell Biology
Cell and subcellular structure and function. Membranes, cell organelles, bioenergetics, photosynthesis, DNA and RNA structure, function and replication, protein synthesis and gene regulation are the major areas considered. Laboratory includes absorption spectrophotometry, cell fractionation, organelle isolation, DNA isolation and denaturation. 2 hrs. lecture, 2 hrs. lab per week.
Offered: Fall semester. Prerequisites: BI 160, BI 140, BI 280 and Organic Chemistry.

BI 440 **4 cr. 6 hr.**
General Microbiology
Structure, nutrition and growth of bacteria; characterization of representative bacteria, fungi, viruses and protozoa and their genetic and metabolic peculiarities. Immunological techniques and the immune response in man. Laboratory work includes aseptic technique, isolation and cultivation of microbes, staining techniques and diagnostic metabolic reactions. 2 hrs. lecture, 2 hrs. lab per week, plus additional time.
Offered: Fall semester. Prerequisites: Organic Chemistry and Genetics or permission of Instructor.

***BI 450** **3 cr. 3 hr.**
Molecular Biology
An advanced course dealing with a variety of topics including: molecular approaches to cancer, recombinant DNA, sequencing of DNA and RNA, origin of life, current advances in molecular genetics. Offered spring semester.
Prerequisites: BI 280; and BI 410 or BI 430.

***BI 460** **3 cr. 3 hr.**
Evolution
An introduction of the principles governing the evolution of living organisms. Emphasis will be placed on the ways by which the various other biological disciplines relate to evolutionary processses. A survey of paleontological evidence will be given to demonstrate how evolutionary principles have effected life.
Prerequisites: BI 140, 160, 230, and 280.

BI 470 **3 cr. 3 hr.**
Environmental Health
Investigations into that aspect of public health that concerns itself with forms of life, chemical substances, environmental conditions and other forces in the

surroundings of man that exert an influence on his health and well-being. 3 hrs. of lecture discussion and occasional field trips.
Offered: Fall semester. Prerequisite: BI 110 or equivalent or permission of Instructor.

BI 480 3 cr. 4 hr.
Neurobiology
Neural activity and the neural bases of behavior as illustrated by simpler invertebrate and vertebrate nervous systems. Topics will also include: structure and function of neurons, neurodevelopment, cellular basis of behavior (sensory and motor systems), neuropharmacology, neural plasticity. Lectures demonstrations.
Prerequisite: one year of Animal Biology and one year of Chemistry, or permission of Instructor.

BI 481 3 cr. 3 hr.
Immunology
A survey of the immune response, antibody formation and function, immuno-suppression, blood group antigens and antibody-antigen reactions. The principles of complement activity, hypersensitivity and autoallergic reactions. Lectures laboratory.
Offered: Spring semester. Prerequisites: BI 440 and Organic Chemistry.

BI 488 3 cr. 3 hr.
Biology Teaching Methods
Methods and philosophical background for teaching of modern biological science. (This course is a prerequisite for student teaching and should be taken the semester prior to student teaching: consult Screening Policies for Student Teachers for other requirements for student teaching.) 1 hr. public school assisting, 1 hr. discussion, 1 hr. independent study per week.
Offered: Fall semester. Prerequisites: junior or senior standing, ED 301, PY 223 and permission of Instructor.

BI 490 1 to 3 credits
Independent Study
Laboratory or other independent research under the guidance and supervision of one or more faculty members. A comprehensive term paper is required for successful completion of the project. Offered: Fall and Spring semesters. May be repeated for credit to a maximum of 9 semester hours.
Prerequisites: junior or senior standing, 15 credits of Biology and special permission of the Departmental Curriculum Committee.

BI 495 3 cr. 6 hr. or 6 cr. 12 hr.

Laboratory or field experience in conjunction with established research programs at cooperating off-campus governmental industrial or private foundations. Supervision is shared by program directors and faculty members at Fitchburg State College. Assignments, contingent upon student's abilities and acceptance by the cooperating institution, involve one or two full days of work per week. May be repeated for credit to a maximum of 12 semester hours.
Prerequisites: senior standing and approval of the Biology Department.

Business Administration

Chairman
George Murphy

Assoc. Professor
George Murphy

Asst. Professors
Ann Bogojavlensky
David Carey
Martin Cusack
Robert Kelleher
John McKeon
Francis Morrison
William Moriarty
Harold Schonbeck
Gary Vostok

Instructors
John Boursy
Diane Caggiano
James Conlin
Terry McElligott
Michael Markham
James Noonan
Charles Wellans

The Business Administration Program at Fitchburg State College includes

concentrations in either of four areas of business: accounting, management, marketing, or labor relations.

Core Curriculum

Principles of Accounting I and II, Business Law I, Basic Finance, Principles or Management, Fundamentals of Marketing, Economics I and II, Statistics I and II, Introduction to Computers for Business.

Accounting Curriculum

Intermediate Accounting I and II, Business Law II, Cost Accounting I and II, Tax Accounting, Auditing, Advanced Accounting I and II, Financial Management of Corporations.

Management Curriculum

Production Management, Personnel Management, Business Fluctuations and Forecasting, Organizational Behavior and Theory, Social and Political Environment of Business, Business Policy and Strategy, and Managerial Accounting.

Marketing Curriculum

Advertising, Consumer Behavior, Market Research, Managerial Accounting, Business Policy and Strategy, and three marketing electives.

Labor Relations Curriculum

Labor Relations and Collective Bargaining I and II, Labor Law I and II, Collective Bargaining Methods, Labor Organization and Trade Unionism, Labor and Management Relations, Managerial Accounting, and Business Policy and Strategy.

The Minor in Business Administration

The minor in Business Administration consists of eighteen credits. The following four courses are required: Accounting I, Business Law I, Principles of Management, Fundamentals of Marketing and two business electives.

Business Laboratories

The department of Business Administration offers students a series of learning laboratory environments or internships providing students career training and preparation. Details for this internship are outlined in the catalog's special internship section.

BA 110 **3 cr. 3 hr.**
Principles of Accounting I
This course examines basic accounting theory and its application. The course includes the accounting equation; journalizing, posting and trial balance; adjusting and closing procedures; preparation of financial statements; use of special journals, receivables and payables; merchandise inventory; accounting systems and processes.

BA 111 **3 cr. 3 hr.**
Principles of Accounting II
This course deals with the more complex forms of business: partnerships and corporations; capital stock and bonds; retained earnings; income taxes and cost analysis.
Prerequisite: BA 110.

BA 210 **3 cr. 3 hr.**
Intermediate Accounting I
In this course emphasis is placed on the application of accounting theory to practice problems in order to develop financial statements of proper form and content. The relationship between various financial statements is constantly reaffirmed. Asset items of the balance sheet are treated comprehensively.
Prerequisite: BA 111, BA 220, BA 230 and BA 50.

BA 211 **3 cr. 3 hr.**
Intermediate Accounting II
Liabilities, reserves, funds and stockholders' equity items are thoroughly treated. Presentation is made of the analysis of financial statements through the use of the ratio method and the consequent critical appraisal attendant upon this method of analysis is stressed.
Prerequisite: BA 210.

BA 220 **3 cr. 3 hr.**
Principles of Management
This course is an introduction into the history and development of modern management philosophy. The course will discuss the principles and techniques of business as they relate to the planning, organizing, directing, and controlling of business enterprises.

BA 230 **3 cr. 3 hr.**
Fundamentals of Marketing
This course discusses the role of marketing in our economic and social structure. It includes the planning, distribution, pricing and promotion of goods and services to consumer and industrial markets, viewed as internal activities of the firm, and as shaped by environmental forces.

BA 240 **3 cr. 3 hr.**
Basic Finance
This course studies the forms and sources of financing business firms, large and small, corporate and noncorporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems.
Prerequisite: BA 110.

BA 250 **3 cr. 3 hr.**
Business Law I
This course is an introduction to the study of business law, its nature and classification, the court systems and their procedures. Contract law, the law of sales and personal property are comprehensively dealt with.

BA 251 **3 cr. 3 hr.**
Business Law II
This course is a continuation of Introduction to Business Law and deals with the law of agency, commercial paper, credit, and the various forms of business.
Prerequisite: BA 250.

BA 260 **3 cr. 3 hr.**
Labor Relations and Collective Bargaining I
An in-depth study of fundamental labor-relations issues: the development of federal labor policy; union organization and union organizing; collective labor-contract negotiation; contract enforcement and the use of strikes and lockouts, boycotts and picketing, and multiemployer bargaining; arbitration and grievance procedure; health, welfare, and safety concerns; equal employment opportunity; labor economics; and state and federal labor legislation, and the role of government in labor disputes.
Prerequisite: BA 460, BA 111, BA 220, BA 230, and BA 250.

BA 261 **3 cr. 3 hr.**
Labor Relations and Collective Bargaining II
A continuation of BA 260. A significant part of the second semester will consider public sector collective bargaining and organizing (local, state, and national, and within healthcare organizations).
Prerequisite: BA 260.

BA 262 **3 cr. 3 hr.**
Labor and Management Relations
This course involves an investigation of the American Labor movement. It is an analytical account of what labor is, why it behaves the way it does, and how it is managed. The course will also cover the various organizational forms and models of labor unions.

BA 312 **3 cr. 3 hr.**
Cost Accounting I
The control aspects of material, labor, and overhead accounting are stressed. The course covers such areas as job and process costs, standard costs, direct costing, marketing costs, costs in decision-making, capital budgeting and profit planning.
Prerequisite: BA 111.

BA 313 **3 cr. 3 hr.**
Cost Accounting II
This course covers planning of profits, costs, and sales through the use of budgets, cost behavior analysis and cash forecasts. The course introduces direct costing, standard costing and conventional gross profit analysis. It emphasizes the uses of cost accounting data for policy making and decision

making purposes through breakeven analysis, capital budgeting, differential and comparative cost analysis.
Prerequisite: BA 312.

BA 314 3 cr. 3 hr.
Managerial Accounting
This course stresses the usefulness of accounting data as it relates to the managerial decision-making process. Computer applications are integrated with the broad objectives relative to planning, control, and analysis. Among the multifaceted areas of study are financial statement analysis, budgeting standard cost analysis, and capital expenditure planning and control.
Prerequisite: BA 111, BA 220, BA 230, and BA 250.

BA 320 3 cr. 3 hr.
Production Management
The basic principles of production management related to the effective utilization of the factors of production in manufacturing and non-manufacturing activities for both intermittent and continuous systems are discussed. The course will also study production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.
Prerequisite: BA 111, BA 220, BA 230, BA 250.

BA 321 3 cr. 3 hr.
Personnel Management
This course surveys techniques of modern personnel management from both the manager and personnel manager's point of view. The course will include such topics as recruitment, selection, interviews, evaluation and development, leadership and supervision, management and labor relations, wage and salary administration.
Prerequisite: BA 111, BA 220, BA 230, and BA 250.

BA 322 3 cr. 3 hr.
Business Fluctuations and Forecasting
This course is an analysis of the operations of our free enterprise system with emphasis on the factors responsible for economic instability; analysis of public and business policies which are necessary as a result of business fluctuations.
Prerequisite: MA 170, EC 120, BA 111, BA 220, BA 230, and BA 250.

BA 330 3 cr. 3 hr.
Advertising
Topics in this course will include the functions of advertising, planning and advertising campaign copy, artwork, and media selection. Students will become knowledgeable about the preparation and use of advertising.
Prerequisite: BA 230, BA 111, BA 220, BA 250.

BA 331 3 cr. 3 hr.
Consumer Behavior
This course will familiarize the student with the consumer decision-making processes. It will utilize the concepts of the social and behavioral sciences in order to provide an understanding of consumer buying behavior.
Prerequisite: BA 230, BA 111, BA 220, and BA 250.

BA 332 3 cr. 3 hr.
Market Research
This course will emphasize the importance of research in marketing planning and decision making. It will include the basics of scientific investigation, the search for information, sampling, data collection, data analysis, interpretation and reporting.
Prerequisite: BA 230, MA 107, BA 111, BA 220, and BA 250.

BA 363 3 cr. 3 hr.
Collective Bargaining Methods
After a discussion of strategies and tactics used in labor negotiations, this course will evolve from simulated contract negotiations. It will give the student first hand knowledge of what goes on at the bargaining table.
Prerequisites: BA 111, BA 220, BA 230, and BA 250.

BA 364 **3 cr. 3 hr.**
Labor Organization and Trade Unionism
This course will provide the student with the knowledge of how unions are organized and operate in the nation. It will include a presentation of the development of craft and industrial unions, the anatomy of local and national labor organizations and of union organizing, and an analysis of the political and economic position of labor unions in the country today.
Prerequisites: BA 111, BA 220, BA 230, and BA 250.

BA 410 **3 cr. 3 hr.**
Advanced Accounting I
This course includes accounting problems involved in the preparation of consolidated financial statements and in home and branch office relationships, mergers and pooling problems are stressed. Special problems in fund and budgetary accounting for government entities and hospitals are covered.
Prerequisite: BA 211.

BA 411 **3 cr. 3 hr.**
Advanced Accounting II
The purpose of this course is to develop in the student the ability to solve a variety of complex problems in order to prepare him for either public professional examinations or executive accounting work in private business.
Prerequisite: BA 410.

BA 412 **3 cr. 3 hr.**
Tax Accounting
This course considers the Massachusetts and Federal Income Tax Laws, with application to individuals, partnerships, fiduciaries, and corporations.
Prerequisites: BA 211.

BA 413 **3 cr. 3 hr.**
Advanced Taxation
This course will study the Federal income tax laws and regulations applicable to partnerships, corporations, and fiduciaries. Federal gift and estate taxes, reorganizations, and personal holding companies will also be discussed.
Prerequisite: BA 412.

BA 414 **3 cr. 3 hr.**
Auditing
The basic concepts of auditing and control are examined in this course. It emphasizes internal control, audit problems, and professional responsibilities of the C.P.A. to the auditing requirements.
Prerequisite: BA 312.

BA 415 **3 cr. 3 hr.**
Accounting Theory
This course will develop a thorough knowledge and understanding of the theory which supports generally accepted accounting principles. Emphasis will be on the application of accounting theory to current financial reporting.
Prerequisite: BA 410.

BA 417 **3 cr. 3 hr.**
Agency Fund Accounting
This course will examine the accounting and reporting principles, standards, and procedures applicable to governmental and not-for-profit entities; such as governmental organizations, hospitals, colleges and universities.

BA 420 **3 cr. 3 hr.**
Organizational Behavior and Theory
This course is a general descriptive and analytical study of organizations from the behavioral science point of view. It includes problems of motivation, leadership, morale, social structure, group networks, communications, hierarchy, and control in complex organizations. The interaction between technology and human behavior is discussed. Consideration of alternative theoretical models is given.
Prerequisite: PY 110, BA 111, BA 220, BA 230, and BA 250.

BA 421 **3 cr. 3 hr.**
Social and Political Environment of Business
This course is a study of the evolution of American business in the context of its changing political and social environment. Analysis of the origins of

the American business creed, the concept of social responsibility of business, and the expanding role of the corporation are included.
Prerequisites: BA 111, BA 220, BA 230, and BA 250

BA 422 **3 cr. 3 hr.**
Business Policy and Strategy
This is an integrating course embracing all organic management functions. Cases are used as subjects for analysis and systematic decision making practice.
Prerequisites: senior status.

BA 430 **3 cr. 3 hr.**
Sales Management
This course will enhance the student's understanding and skills in managing the selling function. The emphasis is on personal selling as an element in the marketing mix.
Prerequisite: BA 230, BA 111, BA 220, and BA 250.

BA 431 **3 cr. 3 hr.**
Retail Marketing
This course introduces the student to the nature and scope of retail marketing and management. The course will include the structure of retailing, merchandising, buying, pricing, promotion, organization and management of the retail firm.
Prerequisite: BA 230, BA 111, BA 220, and BA 250.

BA 432 **3 cr. 3 hr.**
Industrial Marketing
This course centers on the marketing of goods to industrial firms, governmental agencies and other organizations included within the industrial market. The areas covered in the course will include distribution channels, pricing policies, product planning and market strategy.
Prerequisite: BA 230, BA 111, BA 220, BA 250, BA 330, and BA 332.

BA 433 **3 cr. 3 hr.**
International Marketing
This course will concentrate on the marketing activities of firms operating in an international market. It will provide the student with an understanding of the factors that influence the selling of products in international markets. It will include the planning, organizing, and controlling of international marketing, along with its law, history, and economics.
Prerequisite: BA 230, BA 111, BA 220, BA 250, BA 330, and BA 332.

BA 434 **3 cr. 3 hr.**
Developing Marketing Strategies
Through the use of case studies and, where possible, cooperating businesses and nonprofit organizations, students will identify the pertinent marketing problems and opportunities, assess the organization's resources, and develop viable marketing programs. The course will include new product development and management strategies for effective marketing policies over the course of the entire product life cycle.
Prerequisite: BA 230, BA 111, BA 220, BA 230,BA 250, BA 330, and BA 332.

BA 440 **3 cr. 3 hr.**
Financial Management of Corporations
This course covers the analysis and management of the flow of funds through an enterprise. Cash management, source, and application of funds, term loans, types and sources of long term capital. Capital budgeting, cost of capital, and financial structure. It is an introduction to capital markets.
Prerequisite: BA 240.

***BA 460** **3 cr. 3 hr.**
Labor Law I
A course relating basic labor issues to the legal process. The study begins with a brief history of U.S. labor in the courts, tracing the development of national labor policy in the twentieth century, embodied in the National Labor Relations Act and in related federal law and regulation. The course then considers the role to the National Labor Relations Board and federal courts in determining whether labor organization conduct or employer conduct constitute "unfair labor practices" under the Act. The course relies mainly on primary materials, both state and federal court decisions, and administrative opinions.

***BA 461** **3 cr. 3 hr.**
Labor Law II
A continuation of BA 460.
Prerequisite: BA 460.

BA 499 **15 cr.**
Internship
This course is a full semester internship in either the private or public sector. The purpose of the course is to allow the student the opportunity to synthesize the theoretical learning of the classroom with a practical work situation.
Prerequisite: Permission of the department.

Chemistry

Chairman
Daniel Robinson

Assoc. Professors
Daniel Robinson
Robert Strong

Asst. Professors
Arthur Lerit
Judith Ciottone

Instructor
Janice Wong Dieter

The degree of Bachelor of Arts in Chemistry must include CH 110, 120, 200, 210, 300, 320, 330, 350, PH 130, 140; MA 230, 240 and at least three semester hours of Chemistry electives at or above CH 360. PH 150 is recommended for all Chemistry Majors and proficiency in German, French or Russian at the second year level is required for the Bachelor of Arts.

The Bachelor of Science in Chemistry must include CH 110, 120, 200, 210, 300, 320, 330, 350; CS 150, or CS 100 and one additional course approved by the Department, 230; PH 130, 140; MA 230,240 and at least 3 semester hours of electives in Chemistry at or above CH 360. PH 150 is recommended.

A minor in Chemistry consists of CH 200, 210, and 300 in addition to one course selected from CH 350, 320, 330, or 360.

CH 100 **3 cr. 4 hr.**
Chemistry for Industrial Technology
The fundamentals of atomic structure, chemical bonding, chemical reactions, solutions, acids and bases, gases and a brief introduction to organic chemicals are discussed. Emphasis is placed on industrial processes and applications of basic concepts of chemistry.

CH 110 **4 cr. 6 hr.**
General Chemistry I
The fundamental laws and theories of chemistry such as atomic structure, the periodic table, electrochemistry, descriptive inorganic chemistry, the gas laws, solutions, and chemical binding. Chemical calculations are emphasized.

CH 120 **4 cr. 6 hr.**
General Chemistry II
Continuation of (and prerequisite): CH 110 or the equivalent.

CH 130 **3 cr. 4 hr.**
Chemistry I
Fundamentals of chemistry for non-science majors. This course is largely limited to inorganic concepts.

CH 140 **3 cr. 4 hr.**
Chemistry II
Continuation of (and prerequisite): CH 130 or the equivalent. It also involves a study of organic chemistry.

CH 200, 210 **4 cr. 6 hr. each**
Organic Chemistry I and II
Properties of organic compounds are discussed in terms of their molecular structures and reaction mechanisms. Recommended for chemistry majors, and or others contemplating graduate study and for those who feel the need for a solid theoretical foundation.
Prerequisites for CH 200: CH 110 and 120.

CH 240, 250 4 cr. 5 hr. each
Introduction to Organic Chemistry I and II
A survey of the major classes of organic compounds—their chemical and physical properties. Reduced emphasis on theoretical foundations permits inclusion of topics in natural products, chemistry and bio-organic application.
Prerequisites: CH 110 and 120.

CH 300 4 cr. 6 hr.
Quantitative Analysis
Emphasis on theory and application of Quantitative Analysis. The lectures stress chemical equilibrium, solubility product, complexometric formation, oxidation-reduction, and stoichiometric calculations.
Prerequisites: CH 110 and 120 or the equivalent.

CH 320 4 cr. 6 hr.
Physical Chemistry I
The underlying principles of chemistry from a physical chemistry standpoint. Kinetic theory, theories of the structure of matter, theory of electrolytic solutions, electrochemistry, thermodynamics, kinetics.
Prerequisite: CH 300 or the equivalent. Offered in alternate years.

CH 330 4 cr. 6 hr.
Physical Chemistry II
Continuation of (and prerequisite): CH 320. Offered in alternate years.

CH 350 3 cr. 5 hr.
Instrumental Analysis
Essentially a laboratory course in Instrumental Analysis including one hour lecture per week. Laboratory experiments include spectrophotometric, conductometric, potentiometric, and chromatographic analysis.
Prerequisite: CH 300 or the equivalent.

Advanced Topics

Student and faculty availability determine the following course offerings.

***CH 360 3 cr. 3 hr.**
Advanced Inorganic Chemistry
Valancy theories, acid-base theories, reactions in non-aqueous solvents, complexation and chelation, physical measurements.
Prerequisite: CH 320 or the equivalent.

CH 400 3 cr. 6 hr.
Natural Products Chemistry
Isolation, purification, and identification of pure compounds from a variety of naturally occurring substances. Special techniques will be introduced whenever feasible. Six hours of laboratory.
Prerequisites: CH 200 and 210.

CH 410 4 cr. 6 hr.
Biochemistry
(See BI 410).
Prerequisite: CH 250 or CH 210.

***CH 420 4 cr. 6 hr.**
Polymer Chemistry
An introduction to the synthesis and properties of macromolecules which also serves as an application of chemical principles to this interesting and important group of materials. Two hours of lecture and one four-hour laboratory period.
Prerequisites: CH 200 and 210 or the equivalent.

CH 430 4 cr. 4 hr.
Radiation Chemistry
Fundamentals of radiation chemistry, including radioactivity, atomic nuclei, nuclear reactions, activation analysis, reactors, and radiation detection and measurement with emphasis on the use of radioactive materials in chemical applications.
Prerequisites: CH 300, PH 140.

CH 440 4 cr. 4 hr.
Electrochemistry
Advanced course covering the theory and application of electrochemical cells, electrodes, analytical procedures, etc.
Prerequisite: CH 300.

CH 490 1 to 3 S.H.
Independent Study in Chemistry
Laboratory research under guidance of the Chemistry staff.
Prerequisite: Permission of the Instructor.

Communications Media

Chairman
Gunther Hoos

Professors
William Bowers
Lee DeNike
David Ryder

Assoc. Professors
William Fitzgibbon
Peter Laytin
Norman Locke
John Magnasco
John Meaney

Assist. Professors
Teresa Carsten
Gunther Hoos
Helen Obermeyer

Instructors
Mark Irwin
Art Krauss
Ann Mrvica

The Communications Media Program is designed to integrate the theory and skills necessary for the design, production and evaluation of visual, electronic and printed media. Using an exceptionally well-equipped and sophisticated facility, the program prepares students for professional careers in several important fields: non-broadcast television production, photography, graphic design, motion picture production, computer based instruction (CBI) and technical writing. Combined with a well-rounded education in the humanities, sciences and social sciences, Communications Media students culminate their course of study with a full semester of on-the-job experience in their chosen area of specialization.

The "Visions" Honors Show

Each May the Communications Media department mounts its annual juried honors exhibit of the best student work in the Campus Gallery. Communications Media students from all specialties enter their work. Photographs and graphics are displayed in the gallery, while films, videotapes and multi-image programs are shown in the campus screening room. The "Visions" show is an important recognition of the professional and artistic work done by Communications Media students.

Phase I— Theoretical
Phase I is the foundation of the program and is comprised of three required courses. Students are introduced to a variety of language and code systems used in print and non-print media. Other studies in this phase of the program include an introduction to the creation and interpretation of visual messages, the impact of mass media upon the individual and society, and the technology used to convey messages.

Phase II— Basic Technical Development
Phase II provides freshmen and first-semester sophomores the opportunity to develop some of the basic technical skills that will enhance their effectiveness when entering their professional specializations. Students choose at least three 2-credit hour courses from: Sound Production, Graphic Techniques, Script Writing, Color, Slide Tape Production, Communications Technology and Graphic Slide Production.

Phase III— Specialization
Phase III is the "specialization" area of the program. It provides an opportunity for students to become involved with an indepth investigation in the area of communications most closely aligned with individual talents and career inclinations. Students may choose one of the following areas for specialization: non-broadcast television production; photography; graphic design; motion picture production; computer based instruction (CBI); technical writing. Selection of an option and the six courses necessary to complete the option is done with the consent of the student's advisor.

Phase IV— Personal and Professional Development
Phase IV provides the student with an opportunity to examine the personal and social interaction skills necessary for professional effectiveness. In this phase the student selects three of the listed courses. Topics of study include:

interpersonal communication, group dynamics, learning theory, and organizational and management procedures.

Phase V—Application
Phase V is the culmination of study providing the student with an opportunity to apply his or her knowledge and skill to a professional work setting associated with the chosen area of specialization. This practicum experience may be on- or off-campus and carries 6 or 12 semester hours of credit. To be eligible for the practicum phase students must achieve a 2.5 cumulative grade point average in their Communications Media courses prior to the practicum experience.

Course Designed for Non-Communication Majors

CM 030 3 cr. 3 hr.
Amateur Photography
This course is an introduction to the aesthetic and technical aspects of photography. The following topics are included: exposure techniques; basic 35mm camera work; fundamental darkroom techniques. No prior photographic experience is required. Students are responsible for all film and paper supplies.

Courses Designed for Communications Majors

Phase I

CM 110 3 cr. 3 hr.
Communication Theory
This is a broad-based introduction to the theory of communication and a comparative treatment of the sign systems or languages through which one communicates. Exploration of the various sign systems will serve as the vehicle for illustrating much of the communication theory relating to the media field.

CM 112 3 cr. 3 hr.
Message Design
An introduction to visual communication for the development of visual literacy for recognizing, making and understanding visual messages that are negotiable by all people. Students will become involved with a variety of activities in previsualization, planning, designing, making and evaluating visual messages. The activities will involve exploration in a variety of graphic languages and methods of composition and design based upon a study of the basic visual elements, the strategies and options of visual techniques, the psychological and physiological implications of visual composition.

A range of media and formats will be used by students for laboratory exploration in information design. Students are responsible for the purchase of special design tools.

CM 113 3 cr. 3 hr.
Introduction to Communications Systems
A study of selected systems of communication. Focuses upon sources and development of ideas basic to these systems as well as the physical relationships in the encoding, decoding, and storage of communication transmission systems. Topics include electronic communication systems, film, graphics, photography, print, radio and television.

Phase II
Phase II courses are intended as introductory courses to the student's specialty and should be taken during the freshman year. Three courses are required, with CM 235 Technology of Communication required of all Communication Media majors.

CM 230 2 cr. 2 hr.
Sound Production
A basic course in the theory and practice of sound recording and sound mixing for film and television. The course includes location and studio recording, sound editing, and multi-track sound mixing.

CM 231 2 cr. 2 hr.
Graphic Techniques
An introduction to the skills and techniques necessary for graphic

communication through the use of various graphic materials and tools. Students will explore the basic principles of design: Line, form, value, texture and balance.

CM 232 **2 cr. 2 hr.**
Script Writing
A basic course in script writing for film, television and multi-image productions including preparation of proposals, treatments, storyboards, and scripts. The emphasis is on scripts for documentary and industrial programs.

CM 233 **2 cr. 2 hr.**
Color
An introduction to the basic principles of color as they relate to graphics, film, photography and television. Emphasis given to color's physical, psychological and perceptual components.

CM 234 **2 cr. 2 hr.**
Slide Tape Production
An introduction to planning, design, production and presentation of single screen single projector slide tape productions, including storyboarding, basic live action and copy photography, title-making, sound track preparation and program cueing.

***CM 235** **2 cr. 2 hr.**
Communications Technology
This introductory course focuses upon selected visual aural devices and materials used for disseminating information. Experiences and projects will stress the development, evaluation and effective presentation of instructional or informational materials as related to the areas of specialization of the Communications Media major. This course is required of all Communications Media majors.

***CM 236** **2 cr. 2 hr.**
Graphic Slide Production
A course on creative graphic slide production, slide and straight copy reproduction, including color balance and the exploration of the various films and materials used in photographic production.

Phase III
An addition to the stated prerequisites for individual courses in the phase, all students must have completed three (3) courses from Phase II prior to entering any Phase III course. Students should consult with their advisor regarding the appropriate basic technical development courses for their chosen specialty.

CM 330 **3 cr. 3 hr.**
Word Processing
Students operate computer programs to create, store, revise and print text and graphics information in a variety of styles. Emphasis is on hands-on applications using non-technical terms. There are no prerequisites, but typing experience is helpful. This course is required for all Communications Media students enrolled in the Technical Writing specialty.

CM 331 **3 cr. 3 hr.**
Programming I for CA MI
A modular approach to programming for communications which begins with a study of the BASIC language. Exercises in animated color graphics and music are included to demonstrate computer interfaces in the area of interactive instructional design.
Prerequisite: CM 330 or equivalent.

CM 332 **3 cr. 3 hr.**
Programming II for CA MI
A continuation of CM 331 including presentations on computer nomenclature, system monitors, memory organization, I/O structures, and hardware configuration.
Prerequisite: CM 330 or equivalent.

CM 333 **3 cr. 3 hr.**
Computer Based Instruction (CBI)
A beginning course in Computer Based Instruction (CBI). Students use a set of stepwise authoring procedures to develop computer based instructional modules. A feedback strategy is included in the development process.
Prerequisite: CS 100.

CM 334 **3 cr. 3 hr.**
Computer Based Instruction (CBI) II
This course in CBI introduces the use of

television to computer based instruction. Students become familiar with computer programs to computer format a TV tape, prepare computer start end points for a TV presentation, enter feedback questions into computer storage and operate the program to control the TV-taped presentation.
Prerequisites: CM 333, CM 350 and CM 421.

CM 335 **3 cr. 3 hr.**
Computer Based Instruction (CBI) III
This final course in CBI is project oriented and culminates with the production of a computer controlled interactive television instructional program. The completed project serves as the student's portfolio presentation.
Prerequisites: CM 334, CM 352, and PY 350, Psychology of Learning. This is a senior level course.

CM 340 **3 cr. 3 hr.**
Journalism
Readings in the mass media with individualized writing assignments. Some emphasis on the technical aspects of newspaper work. (Credit will not be given for both CM 340 and EN 430.)

CM 341 **3 cr. 3 hr.**
Writing For Business and Technology
A study of writing for students interested in business, industry, and management. Includes business correspondence, description of process and mechanisms, sets of instructions, proposals, abstracts, reports, etc. (Credit will not be given for both CM 341 and EN 441.)

***CM 342** **3 cr. 3 hr.**
Feature and Magazine Writing
Writing feature articles for newspaper, magazine, and trade journals. (Credit will not be given for CM 342 and EN 442.)

CM 344 **3 cr. 3 hr.**
Photojournalism
Visual communication of information keyed to picture series and picture stories with emphasis on utilization with the industrial market.
Prerequisites: CM 360, and permission of Instructor.

***CM 345** **3 cr. 3 hr.**
Writing for Public Communication
Emphasis on fundamentals of writing for public communication; analysis of variables, viz., readability, color clarity, organization of material, flow, crispness. Customary forms used in the field including news releases, features, profiles, articles, editorials, manual copy. Further examination of institutional editor as creative interpreter of messages to numerous publics inside and outside the organization.
Prerequisites: CM 340, CM 341.

***CM 346** **3 cr. 3 hr.**
Public Relations
Treatment of definitions and concepts, history, potential careers, research methods. Focus is on role of managed communications in public relations unique to industry, human services and education institutions.

CM 350 **3 cr. 3 hr.**
Introduction to Television Production
Introduction to television production techniques using both studio and electronic field production (EFP). This course builds the technical and creative foundation for all subsequent television courses. Student purchase of videotape is required.

CM 351 **3 cr. 3 hr.**
Television Production
TV II is exclusively a studio production course and includes: lighting and set design, directing, switching, studio sound mixing, all control room and floor operations, script writing, performance as well as electronic editing. All students will direct and crew on class productions. Student purchase of video tape is required.
Prerequisites: CM 350 and permission of Instructor.

CM 352 **3 cr. 3 hr.**
Instructional Television
A study of the research, evaluation and application of the television medium for instructional purposes. Particular emphasis is placed on the use of television with Computer Based Instruction (CBI). Student purchase of videotape is required.
Prerequisites: CM 350, 351, 356

CM 354 **3 cr. 3 hr.**
Commercial and Public Broadcasting
This studio EFP production course examines the nature of documentary reporting and editing as well as the preparation and presentation of news, commentary, feature stories, news pictures and films. Students create and produce a series of television programs for cable broadcast. Student purchase of videotape is required.
Prerequisites: CM 350, CM 351, CM 356 and permission of the Instructor.

CM 355 **3 cr. 3 hr.**
Television Management
A study of television management with emphasis on facilities, personnel functions and activities.
Prerequisites: CM 350 and permission of Instructor.

CM 356 **3 cr. 3 hr.**
Electronic Field Production (EFP)
Development of the skills necessary for non-studio on location television production including: shooting and recording with color EFP equipment; location sound recording; location lighting; directing; electronic editing and other post-production techniques. Students are responsible for the purchase of videotape.
Prerequisites: CM 350 and permission of Instructor.

CM 357 **3 cr. 3 hr.**
Cable Communications
This course details the uses and application potential of cable communications. Included are a history of cable television, the implication of computer technology in home and business cable installations, an overview of cable's impact on education as well as the process involved in cable licensing.
Prerequisites: CM 350 and permission of the Instructor.

CM 360 **3 cr. 3 hr.**
Photography I
An introduction to the technical and aesthetic aspects of photography such as exposure techniques, film, paper, and basic 35mm camera work. Students are responsible for all paper and film supplies.

CM 361 **3 cr. 3 hr.**
Photography II
A continuation and refinement of the material covered in CM 360, Editing, sequencing and visual articulation are stressed. Students are responsible for all paper, film and mounting materials.
Prerequisite: CM 360.

CM 362 **3 cr. 3 hr.**
Photography III
An introduction to medium format photography, with advanced work in 35mm photography. Studio lighting and portraiture will be explored. Students are responsible for all paper, film and mounting materials.
Prerequisite: CM 361.

CM 363 **3 cr. 3 hr.**
Large Format Photography
This course will specialize in 4 x 5 photography and the use of the Zone System. Students are responsible for all paper and film supplies.
Prerequisite: CM 361.

CM 364 **3 cr. 3 hr.**
Color Photography
An introduction to color photography basic theory, C-prints, paper, and Chemistry, Students are responsible for all paper and film supplies.
Prerequisite: CM 361.

CM 365 **3 cr. 3 hr.**
Photo History
A survey of the development of photography to the present day.

CM 366 **3 cr. 3 hr.**
Photo Management
Students will be able to design a space for private, commercial and educational usage. Included will be an understanding of flow, function, equipment inventory, record-keeping and budget control.
Prerequisites: CM 361 and permission of Instructor.

CM 367 **3 cr. 3 hr.**
Multi-Image Production
Development of skills necessary to plan, produce and present multi-image productions for industry, education and health care facilities. The course includes: scripting; photography; graphics; programming of up to nine slide projectors; sound recording and mixing, as well as the basics of effective multi-image presentation. Students are responsible for all supplies.
Prerequisite: CM 360 or permission of the Instructor.

***CM 368** **3 cr. 3 hr.**
Bio-Medical Photography
Examination and practice with the current techniques in applying photography to the biomedical field. Students are responsible for all paper and film supplies.
Prerequisites: CM 362, or permission of Instructor

CM 369 **3 cr. 3 hr.**
Photography Seminar
Advanced study in the medium. Students are responsible for all paper and film supplies.
Prerequisites: CM 362, or CM 363, or CM 364.

CM 370 **3 cr. 3 hr.**
Film Production I
An introduction to the principles of filmmaking including the technical creative aspects. Students are introduced to cameras, film stocks, exposure, lighting, composition, camera movement, cinematic storytelling and editing. As part of the coursework, students produce six short films in silent Super 8. Students are responsible for film purchase and processing.

CM 371 **3 cr. 3 hr.**
Film Production II
This course adds sound in the form of single-system Super 8 production to the filmmaking process. Emphasis is on the production of several films for which sound must be recorded or created. Cinematographic, directing and editing skills are sharpened. Students are responsible for all film purchasing and processing.
Prerequisite: CM 370.

CM 372 **3 cr. 3 hr.**
Film Production III
Film Production III teaches the fundamental skills of double-system film production—the methodology of all professional motion picture production. Using the most advanced double-system Super 8 equipment anywhere, students produce a sophisticated and professional film as their class project. Students are responsible for all film supplies.
Prerequisites: CM 370 and permission of Instructor.

***CM 373** **3 cr. 3 hr.**
Advanced Production Seminar
Open to students specializing in film or television, this course deals with the role of the director and producer. Topics include: casting; directing professionals and non-professionals; working with talent agencies; hiring crews; production logistics, etc.
Prerequisites: CM 371 or CM 350.

***CM 374** **3 cr. 3 hr.**
16mm Production
Students in this course apply the techniques of film production to 16mm. Due to the extremely high cost of 16mm production, students will script, shoot and edit a sponsored 16mm film or series of commercials.
Prerequisites: CM 371, CM 372, CM 373 and permission of Instructor.

CM 376 **3 cr. 3 hr.**
History of Film I
A study of the narrative and documentary approach to filmmaking from the silent era to the 1950s. The course is taught

by means of lectures preceding relevant film screenings. Students will prepare film critiques and write a term paper.

CM 377 **3 cr. 3 hr.**
History of Film II
A study of the narrative and documentary film from the mid-1950s to the present. America and foreign films, including experimental and animated production, will be screened. This course is a continuation of CM 376. Film critiques and a term paper are required.

CM 380 **3 cr. 3 hr.**
Introduction to Graphic Design
An introduction to the basic methods, attitudes, and skills common to all art forms as applied to graphic communicative form. Emphasis will be on the development of manipulative skill and the ability to handle the basic principles of design such as line, form, balance, contrast, etc. Students are responsible for all graphic supplies.

CM 381 **3 cr. 5 hr.**
Graphic Design—Production I
A problem solving approach to graphic design projects. The course involves experiments with the physical and psychological aspects of graphic communication using graphic, typographic, and photographic forms. Emphasis is on the effects of design on the communication process. Students are responsible for all graphic supplies.

CM 382 **3 cr. 5 hr.**
Graphic Design—Production II
An examination of the relationship of graphic design to the changing socio-economic forces in our society. This inter-relationship is made evident through the process of solving specific related design projects. Problems are approached and solutions reached through teamwork and evaluated by joint critique. Students are responsible for all graphic supplies.
Prerequisite; CM 381.

CM 383 **3 cr. 5 hr.**
Graphic Design—Photography
Commercial applications of photography will be explored, including product presentation, advertising, illustration, promotion, and publication photography. The designer as a photographer will solve assigned problems using various techniques and materials including photo modification, various treatments, resin coated papers and Kodalith films. Students are responsible for all graphic supplies.
Prerequisites: CM 360, CM 382.

***CM 384** **3 cr. 3 hr.**
Graphic Management
A study of the theories and practices of advertising, sales, and marketing management in business, industry and education with emphasis on the graphic designer in the roles of creative art director, production manager, and designer illustrator.
Prerequisites: CM 381, CM 382.

***CM 385** **3 cr. 5 hr.**
Display and Signage
A survey of the field of general display, P.O.P. display, signage systems, identifiers and other larger forms of graphic expression. Emphasis on clear communication of information, ease of recognizability, and coherence of designed systems. Problems will be taken through finished product or "mock-up". Students are responsible for all graphic supplies.
Prerequisites: CM 381, CM 382.

***CM 386** **3 cr. 5 hr.**
Publication Design
An exposure to the design of text-intensive pieces. Students work with a variety of media (hand-drawn illustration, photography or typography as a graphic element). A discussion of effects of type choice on readability, use of white space, and methods of illustration are included. Problems involve copy casting, type selection, layout and design of multi-paged work, and choice of format and illustration. Students are reponsible for all graphic supplies.
Prerequisites; CM 381, CM 382, CM 388, or permission of Instructor.

***CM 387** **3 cr. 5 hr.**
Package Design
A study of the graphic processes in three-dimensional packaging with emphasis on the various materials and display requirements. Students will investigate and work with letterpress, offset, and silk screen processes. Students are responsible for all graphic supplies.
Prerequisites: CM 381, CM 382.

CM 388 **3 cr. 5 hr.**
Typography, Comprehensives and Mechanicals
An in-depth study of letter forms from ancient through modern photo-modified type. Projects involve the whole process from rough design, through comprehensives, to "camera-ready" mechanicals. Students are responsible for all graphic supplies.
Prerequisites: CM 381, CM 382.

CM 389 **3 cr. 3 hr.**
Electronic Graphic Design
An introduction to the techniques and tools utilized to create, manipulate and organize the graphic image through the use of electronic media. This course will demonstrate present and future applications of electronically generated images as they relate to the graphic designer. Students will have hands-on experience with computer and television technology as well as presentations of relevant topics.
Prerequisite: CM 382.

CM 390 **3 cr. 3 hr.**
Graphic Design III
Advanced study in graphic design concentrating on technical and creative illustration. Students will work in various media including pen and ink, watercolor, marker and airburst.
Prerequisite: CM 382.

Phase IV

CM 420 **3 cr. 3 hr.**
Human Communications Technology
A study of the human relations problems associated with the introduction of communications technology into industry, business, schools and other public or private agencies. Students conduct an intrapersonal and interpersonal self-inventory to identity those qualities and skills which should be stressed and those which need improvement for shaping their communication with people who may have different attitudes and values toward a particular technology. An in-depth study of the application of communications technology in an assigned corporate or business setting will be conducted.
Prerequisite: Completion of all Phase I and Phase II courses. This is a senior level course.

CM 421 **3 cr. 3 hr.**
Instructional/Training Design
An examination of selected learning theories, an overview of various instructional approaches or methods, and the application of the two to instructional communications. Strong emphasis is given to the application of learning theories to Computer Based Instruction (CBI). This course is required for all CBI students.
Prerequisite: Completion of Phase I and Phase II courses.

CM 422 **3 cr. 3 hr.**
Organizational Communication
An examination of the organizational and management procedures used as vehicles for communication within business and educational institutions.
Prerequisite: Completion of all Phase I and Phase II courses.

CM 423 **3 cr. 3 hr.**
Communications Law
This course is a broad-based introduction to communication law. Class sessions will focus on a historical development of law and related philosophical issues most relevant to Communications Media students. Discussion topics will include: the American legal system, the various communication acts, libel, the new copyright laws, the Fairness Doctrine,

plus other relevant matters.
Prerequisite: Completion of all Phase I courses. This course is strongly recommended for all television students.

CM 490
Independent Study
Independent Study provides the opportunity for highly self-motivated students to explore areas of Communications Media not provided within the departmental curriculum. Projects qualifying for independent study credit may involve production, photography, design, research or the writing of an extended monograph. Approval by the sponsoring faculty member and permission of the department chairperson is required.

CM 487 **6 cr.**
Practicum
A full semester on- or off-campus internship requiring 15 18-hour weeks of work in which Communications Media majors apply their knowledge and skills to the practical solution of communications problems.
Prerequisites: Completion of all Phase I, II, III and IV Communications Media courses with an average cumulative Communications Media grade point average of 2.5 or better. Approval by Communications Media Practicum Committee.

CM 488 **12 cr.**
Practicum
A full semester on- or off-campus internship requiring 15 36-hour weeks of work in which Communications Media majors apply their knowledge and skills to the practical solution of communications problems.
Prerequisites: Completion of all Phase I, II, III and IV Communications Media courses with an average cumulative Communications Media grade point average of 2.5 or better. Approval by Communications Media Practicum Committee.

Computer Science

Chairman
William Brown

Professor
Theodore Lapierre

Assoc. Professors
William Brown
Robert Shaughnessy

Asst. Professors
Georges Grinstein
Gerald Johnson
Robert Maguire
Charles Wilson

Instructors
Frank Heirtzler
Frits Lander

The degree of Bachelor of Science in Computer Science must include: CS 150, 200, 230, 240, 250, 280, 310, 320, 370, 380; MA 230, 240, 260; PH 230, 240; plus 9 additional semester hours of Computer Science electives and 6 semester hours of math electives. Recommended electives are CS 210, 420, 440, 550; MA 170, 250.

A minor in Computer Science consists of the following four courses: CS 150 Intro. to Computer Science CS 230 Data Structure CS 280 Assembly Language Programming CS 320 Programming Languages and two additional computer science electives (6 semester hours).

It should be noted that enrollment in the Computer Science minor is limited.

CS 100 **3 cr. 3 hr.**
Introduction to Programming
This course provides an opportunity to learn a higher level programming language, to gain experience in the design, coding and utilization of computer programs and to gain insight into the responsibilities that humans have when they are involved with "computers."

Topics include: the syntax and semantics of a higher level programming language, the design, coding, testing and application cycle, application areas, man-machine interrelationships. Several programming assignments are included.

Prior to enrolling in this course, the student should have working knowledge of high school algebra. (CS 100 does not carry credit toward a Computer Science major.)

CS 150 3 cr. 3 hr.
Introduction to Computer Science
An introduction and foundation for further study in Computer Science and more specialized programming language courses. Students design programs using a top-down modular approach and code programs using a structured style. They should be well prepared to enroll in more specialized higher level programming language courses.

Topics include: problem definition, I O requirements; top-down design, modular design, structure programming. The programming language Pascal will be utilized through the courses and several programming assignments are included. Prior to taking this course, the student should have completed high school algebra. This is the typical first course for Computer Science majors and other students who have a serious interest in this subject. Students gain insight into his her basic strengths, weaknesses, interests and capabilities in terms of further study in this discipline.

CS 160 3 cr. 3 hr.
FORTRAN Programming
A study of the programming language FORTRAN and an introduction to numerical methods of problem solving in several areas. The course content will include: an overview of computer organization, data representations, storage allocation, expressing evaluation, numeric errors, loop structures, decision structures, debugging methods, program verification, FORMAT statements, arrays, functions, and subroutines. Programming projects will include successive approximation, matrix operations, and numerical integration. Before taking this course, the student should have practical experience with a programming language and a general knowledge of software and hardware components of a modern computing system as may be gained in CS 150. The students should also be familiar with the basic concepts of integration and differentiation covered in MA 230, Calculus I. This course is recommended for students with a mathematics or scientific Major.

CS 180 3 cr. 3 hr.
COBOL—I
An introduction to the COBOL programming language and top-down program design using the ideas of structured programming. Some of the techniques used to process business data are covered.

Students design and code COBOL programs for the solution of problems requiring multiple fixed and or variable length records for sequential files. Course content includes: COBOL, identification, environment, data and procedure divisions, problem definition, output format design, input data, record and file design, top-down program design, arithmetic and logical operations, sequential disk files, table-handling, and a substantial number of programming projects.

Before taking this course, the student should have had experience programming with a higher level language and be aware of the function of the major hardware and software components of a digital computer system. Those students desiring working knowledge of COBOL beyond the introductory level should consider CS 270 as a successor course to CS 180.

CS 200 3 cr. 3 hr.
Numerical Methods & Computers I
This course assumes knowledge of FORTRAN and or BASIC. Topics generally covered in this course are: brief survey of iterative methods, infinite series,

acceleration of convergence of an infinite series, numerical evaluation of exponential, logarithmic, circular functions, etc.; roots of equations, Descartes rule of signs, Fourier-Budan and Sturm theorems; methods of numerical integration.
Prerequisites: good background in algebra and two semesters of Calculus.

CS 210 3 cr. 3 hr.
Numerical Methods & Computers II
Finite difference methods, interpolation, extrapolation, summation of certain series; Fourier series; ordinary differential equations (Euler, modifies Eurler, Runge-Kutta, etc.).
Prerequisites: Numerical Methods and Computers I (CS 200).

CS 230 3 cr. 3 hr.
Data Structures
This course presents the most common methods of organizing information to be used in problem solving and emphasized algorithm, development and programming style. Using the programming language Pascal, the student will practice the structured programming techniques introduced in earlier courses.

After taking this course, the student should have a firm foundation in computer science and ability to solve a wide variety of programming problems. The student will have been introduced to the "science" of computer science, as opposed to the "coding" of computer programming.

The data structuring techniques studied will include: arrays, records, sets, linked lists, and trees. The structured programming concepts studied will include: loop-invariants, data abstraction, step-wise refinement, and top-down programming. Particular attention will be spent on the interaction between data structures and storage structures and the trade-offs involved in data structure selection.

Before taking this course, the student should be able to program well in a higher level language. It is recommended that students complete CS 150 before taking this course. This course is required of all computer science majors and is recommended for anyone with a serious interest in computer science.

CS 240 4 cr. 5 hr.
Introduction to Electronics
An introduction to the theory of A.C. and D.C. circuits and an understanding of electronic circuits, solid state diodes, rectifier circuits, and the bipolar transistor and its use in amplifier circuits. Electronic circuits using meters, oscilloscopes, and other laboratory instruments are built and analyzed.

Transistor amplifier circuits are analyzed and designing procedures for rectifiers and filter circuits are covered.

Course content includes: series and parallel D.C. circuits, Kirchoff's Laws, Thevenin's Theorum, capacitors, inductors, series and parallel A.C. circuits, RC and RL circuits, resonance, phasors, diode characteristics, power supplies, bipolar transistors, h-parameters, and load lines. This course includes weekly laboratory experiments on the topics studied.

Before taking this course the student should have a course in general physics and calculus I (Calculus I may be taken concurrently).

CS 250 4 cr. 5 hr.
Solid State Electronics
A study of solid state electronic circuits including common emitter amplifiers, amplifiers using Field Effect transistors, oscillators, optoelectronic devices, and operational amplifiers. Students develop a thorough understanding of modern electronic lab equipment including current solid state devices and their use in modern electronic circuits. Laboratory experiments include multistage amplifiers, sine wave oscillators, astable multivibrators, Field Effect amplifiers, operational amplifiers, bistable and monostable multivibrators, Zener diodes and integrated circuits.

The content of the course includes:

multistage amplifiers, FET amplifiers, feedback oscillators, relaxation oscillators, multivibrators, operational amplifiers.
Prerequisite: CS 240 or equivalent, Calculus I.

CS 270 **3 cr. 3 hr.**
COBOL—II
A study of the facility of COBOL for table and file handling with particular attention to indexed sequential files and variable length records. It is intended for those students interested in becoming able to make substantial contribution in the area of business data processing.

After completing this course, the student should be able to design and code a modest system of programs and provide substantial assistance in the design and coding of larger programming systems. Those students who desire a knowledge of the process of studying the network of interactions within an organization and assist in the development of new and improved methods for performing necessary work should consider CS 300 (Introduction to Systems Analysis) as a successor course to this one.
Topics include: sorting and merging files, table handling, variable length records, indexed sequential access method, file creation, updating and reporting. Includes a substantial number of programming projects.

Before taking this course, the student should have experience that substantially includes the methods and activities of COBOL—I (CS 180).

CS 280 **3 cr. 3 hr.**
Assembly Language Programming
A study of the basic operation of a computing system at the assembly language level. A detailed knowledge of an assembly language and an enhanced understanding of higher level languages are course objectives.

One of the available computer systems will be selected for an indepth study and for programming applications. The course content will include: console operation, loading routines, numerical and character representations, mnemonic operations, instruction formats, location counters, relocation, literals, error flags, addressing modes, parameter passing, subroutine linkage, macros, conditional assembly, device controllers, character-to-integer conversion, and simple data structure realizations.

Before taking this course, the student should have programming experience in at least one higher level language and should be familiar with the general processes within a computing system. This is a required course for all computer science majors and is recommended for others desiring an in-depth knowledge of the internal functioning of a modern computer.

***CS 300** **3 cr. 3 hr.**
Introduction to Systems
A study and analysis of the fundamentals of systems analysis and the ways it is used to study the network of interactions within an organization and assists in the development of new and improved methods for performing necessary work. After completing this course, the student is able to contribute to the systems analysis function within an organization and to integrate data processing activities with the identified objectives of the organization.

Topics include: systems analysis, problem definition, data collection, alternatives, feasibility studies, proposals, prototype systems, implementation and follow up. Included are case studies and project work.

Prior to taking CS 300, the student should have had programming experience with a higher level programming language that included the use of multiple data files and introductory courses in an application area such as business or economics. Otherwise the student should have experience with upper level application area courses with at least one course in higher level programming.

CS 310 **3 cr. 3 hr.**
Operating Systems
This course continues the topics which were introduced in CS 280 and presents an overview of I/O management and

job scheduling in a multiprocessing system. It is intended for the advanced student who has a strong interest in computer science and is required of all computer science majors.
After completing this course, the student should be able to read and understand manuals for any third generation computer system and directly apply them to programming problems.

The course content will include: concepts of a process, interprocess communication and protection system file structures, protection and maintenance of device directories, scheduling algorithms, system state tables, request queues, memory management, and graceful degradation. Programming problems will involve the design and implementation of systems program modules.
Prerequisite: CS 280.

CS 320 3 cr. 3 hr.
Programming Language
The objective of this course is to introduce the student to different concepts in higher level programming languages, and to gain experience in programming in more than one language. BASIC, FORTRAN and other languages such as APL, LISP, and SNOBOL.

Prior to taking this course the student should have the ability to program at the assembly language level and have completed a course that included a study of data structures and a programming language such as PASCAL or PL-1.
CS 230 and CS 160 are recommended prerequisites.

CS 370 4 cr. 5 hr.
Digital Electronics
A study of the design and application of electronic logic circuits including an analysis of sequential logic circuits using Boolean algebra and Karnaugh maps. Counters, registers, serial and parallel adders and arithmetic units are included.

The topics in the course include: Boolean algebra, algebraic simplification, Karnaugh mapping, Quine McCluskey method, combinational logic circuits, sequential logic circuits, comparison of TTL, MOS ECL logic families, the arithmetic unit, coding and decoding, parity detection and generators, multiplexers, demultiplexers. Extensive laboratory work supplements the topics studied.

Before taking this course the student should have an understanding of topics covered in a basic electronics course, including the operation of diodes and transistors, amplifiers, and oscillators.
Prerequisite: CS 250.

CS 380 4 cr. 5 hr.
Computer Organization
An analysis of digital computers in terms of their hardware and the interaction of the hardware and software within the machine.

Topics include: machine language programming, core memories, RAMS, ROMS, PROMS, methods of magnetic recording on tape, discs, ASCII coding, a typical minicomputer, bus structure, time, control, organization of a typical microprocessor, the 6800.

Before taking this course the student should have a good understanding of logic circuits, and have taken some courses in programming.
Prerequisite: CS 370.

***CS 400 3 cr. 3 hr.**
Project Management
This course provides students with the opportunity to participate as a member of a project team in realizing solutions to a selected problem. Semester Hour credits will vary depending on the current project. Topics include: project planning, organization and staffing, project direction, control systems. This course is strongly computer orientated. Students who desire a more complete development of project management should investigate course offerings by other departments.
Prerequisites: CS 300 or equivalent and permission of Instructor.

CS 420 **3 cr. 3 hr.**
Compiler Construction
A study of the techniques involved in the analysis of source language and the generation of efficient object code.

Through an understanding of the process of language translation, the student will write efficient and reliable higher level language programs.

The course content will include: language definition and descriptions, lexical scan, syntactic analysis, operator and operand stacks, code generation and optimization, and execution of code. As a term project, each student will design, construct, and implement a compiler for a simple, structured language.

Before taking this course, the student should have facility in programming in a procedural language and familiarity with assembly language programming. All students are expected to have taken CS 230 and CS 280 and are advised to have taken CS 320. This course is recommended for all computer science majors, but will not be offered every year.

CS 440 **3 cr. 3 hr.**
Software Design
This course provides the student with an opportunity to obtain practical experience in the development of large software systems. Working in chief programmer teams, the students will design and implement one or more complex programming projects and will gain an appreciation for the importance of program specifications, topdown design, structured programming, documentation standards, and communication skills.

The project(s) undertaken in the course will vary and, whenever possible, will involve production programs in use in local industries. After an introduction to the problem to be solved, the class will be broken up into small programming teams, including: a chief programmer, a back-up programmer, a programming librarian and one or more applications programmers. The team will meet regularly to explore design alternatives and to modify program specifications as needed. Unlike industrial teams, the various positions will be rotated so that each student can experience more than one aspect of team management.

Before taking this course, the student should have considerable experience in programming in assembly language and structured programming languages, including CS 280 and CS 230. This course is recommended for all computer science majors but is not offered every year.

CS 450 **4 cr. 4 hr.**
Microprocessor Laboratory
A detailed study of the microprocessor, and some of its applications. Emphasis is placed on the Motorola 6800, its hardware and software, and its associated family of integrated circuits in addition to the Intel 8085 microprocessor.

Students design a microprocessor system, configuring the random access memory, the read-only memory, peripheral devices using peripheral interface adaptor, as well as the combinational logic for the address decoding. The student will write software to control peripheral devices and program EPROMS for the control software.

The contents of course include: 6800 microprocessor, peripheral devices, instruction set, addressing modes, programming EPROMS, short introduction to the 8085 microprocessor.

Before taking the course, the student should be thoroughly familiar with digital electronics, and have some understanding of assembly language programming.
Prerequisites: CS 380, 280.

CS 460 **3 cr. 3 hr.**
Topics in Computer Science
The objective of this course is to study a topic of current interest in computer science. This course serves as a vehicle for curriculum experimentation and/or enrichment.
After completing this course, the student should have an understanding of some current advance in computer science

and/or greater understanding of a particular topic that is of current interest.

The background required of the student, prior to taking this course, depends upon the topic, but generally a background equivalent to about five prior computer science courses would be the minimum expected.

CS 470
Programming Practicum
This course provides an opportunity for a student, working under the direction of a participating faculty member to study or conduct research in an area not covered in other courses.

Typical areas of study include: computer graphics, compilers, operating systems, computer-aided instruction, microprogramming and data structures.

The background required of the student, prior to taking this course, depends entirely on the particular area of study or research. Permission of the instructor is required.

Economics

Professor
Caroline Murphy

Assoc. Professor
Nancy Wiegersma

Asst. Professor
Michael Turk

A minor in Economics consists of EC 100 and 120 in addition to four courses selected from EC 130,140, 150, 160, 300, 320, 340, 350.

EC 100 **3 cr. 3 hr.**
Principles of Economics: Macro-economics
A study of the theory of employment, income and growth. Stabilization policy and current problems in American capitalism are emphasized.

EC 120 **3 cr. 3 hr.**
Principles of Economics: Micro-economics
A study of the theory of the consumer and the business firm. Efficiency in the allocation of resources is examined under conditions of pure competition, pure monopoly, monopolistic competition and oligopoly.
Prerequisite: EC 100.

EC 130 **3 cr. 3 hr.**
Consumer Economics
Theories of consumption and economic functioning, demand; consumer problems; standards of living; policies for protecting consumers and expanding consumption.

EC 140 **3 cr. 3 hr.**
Money and Banking
A study of the role of money, credit and banking in the American economy. Special emphasis is placed on the applicability of monetary policy to the problems of economic stability.
Prerequisite: EC 100.

EC 150 **3 cr. 3 hr.**
Economic Development
An examination of the problems of growth with particular reference to less developed countries; topics of discussion include population, income growth, capital formation, unemployment, foreign investment and aid, and the role of government. Investigation through case studies is emphasized.
Prerequisite: EC 100.

EC 160 **3 cr. 3 hr.**
Public Finance
A study of the principles of governmental expenditures and revenues. Attention is also devoted to the problems of public debt, fiscal policy, and inter-governmental fiscal relations, with particular reference to the United States.
Prerequisites: EC 100 and EC 120.

EC 300 **3 cr. 3 hr.**
History of Economic Thought
This course covers the work of the great economists within the framework of understanding the relationship between

history and economic thought. From the roots of economic thought in the works of the merchantilists and physiocrats, the course turns to the giants in political economy: Adam Smith, David Ricardo, Karl Marx, Alfred Marshall, J. M. Keynes.
Prerequisite: EC 100.

EC 320 **3 cr. 3 hr.**
Comparative Economic Systems
This course covers the different economic systems operational in the world today. Emphasis is on differences between market or capitalist systems and socialist systems. The centrally planned economies are considered as well as the social democratic economies of Northern Europe.
Prerequisite: EC 100.

EC 340 **3 cr. 3 hr.**
Human Resource Economics
Labor market and employment analysis. The course covers the structure of labor markets, the education and training of the labor force and manpower programs. The serious problems of unemployment, underemployment, discrimination and barriers to job entry are also discussed.
Prerequisite: EC 100 and EC 120.

EC 350 **3 cr. 3 hr.**
Urban Economics
An historical and economic explanation of the growth of cities as well as a theoretical analysis of their location, form, and economic structure. Current urban economic problems are also discussed.
Prerequisite: EC 100 and EC 120.

EC 360 **3 cr. 3 hr.**
Intermediate Macroeconomics
A detailed examination of topics in macroeconomics, including theories of consumption, investment, and growth and recession, and efforts by the government to stabilize the economy through fiscal, monetary, or other measures. The course provides an introduction to the Keynesian, neo-classical, and Marxian models of the macroeconomy.
Prerequisite: EC 100.

EC 365 **3 cr. 3 hr.**
Intermediate Microeconomics
An analysis of consumer and producer equilibrium in a market economy. The course examines the behavior of firms in the four market structures and individuals in input markets. Applications at economic theory to concrete problems are emphasized.
Prerequisite: EC 120.

EC 490
Independent Study in Economics
Open to students who have permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

Education

Chairman
Francis Powers

Professors
Patricia Barbaresi
Howard Kingsley
Robert Lee
Francis Powers
Elizabeth Ross

Assoc. Professors
Anne Green
George Miller
Helen O'Flaherty

Asst. Professors
Robert Greene
Irene Passios

The Early Childhood, Elementary, and Secondary Education Department provides students with four curriculum options leading to the degree of Bachelor of Science in Education:

1. Early Childhood Education (Track I, K-3)

2. Early Childhood Education (Track II—Teacher of Young Children with Special Needs, ages 3-7)

3. Elementary Education (1-6)

4. Secondary Education (5-9, 9-12)

1. Early Childhood Education (Track I, K-3)

This track prepares students to become teachers of children in day care centers, nursery programs, kindergartens and first, second, and third grades. A graduate is eligible for Massachusetts certification as an Early Childhood Teacher.

The degree of Bachelor of Science in Education, Early Childhood, must include ED 100, 210, 211, 220, 240, 310, 311, 384, 385, 405; PY 110.

2. Early Childhood Education (Track II—Teacher of Young Children with Special Needs, ages 3-7)

This track prepares students to become teachers of young children (ages 3-7) who have special needs. Graduates are eligible for Massachusetts certification as a Teacher of Young Children with Special Needs. This program represents the combined resources of the Early Childhood component of the ECES Education Department and the Special Education Department. The selection process for this track takes place near the conclusion of the freshman year. Practicum experiences are required in both a special needs classroom and a regular classroom.

The degree of Bachelor of Science in Education for the Teacher of Young Children with Special Needs must include ED 100, 210, 211, 220, 240, 270, 310, 311, 384, or 385, 405; SE 200, 251, 410, 350 (section II), 388, 390. SE 210 and 340 are recommended for students in ECE Track II.

ED 100 4 cr. 5 hr.
Early Childhood Foundations
This course gives a brief orientation of the developmental philosophy and goals of early childhood education. Students will consider educational procedures used in facilitating the development of the child, explore the role of the teacher, the environment and the appropriate instructional strategies used with young children. Required of all Early Childhood majors.

ED 210 4 cr. 5 hr.
Reading in Early Childhood Education
The reading process and factors influencing the development of reading will be examined. Prereading and reading skills will be identified and techniques for assessment of skills will be presented. Methods and materials for teaching primary reading will be discussed and illustrated. A practicum in the reading area is required.
Prerequisite: ED 211.

ED 211 4 cr. 5 hr.
Behavioral Science in Early Childhood I: Child Development and Observation
This course includes a study of principles, patterns, and theories of human development and learning as well as principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of the behavior of young children will occur within a practicum setting. Case studies will be written. Required of Early Childhood majors.
Prerequisite: General Psychology or Introduction to Psychology. Required for ED 311.

ED 220 4 cr. 5 hr.
Language Arts in Early Childhood Education
This course covers an examination of the four components of verbal communication—listening, speaking, reading, writing; current materials and programs for developing language; use of literature in language and concept development; practicum for application of learning.

ED 240 4 cr. 5 hr.
Fine Arts in Early Childhood Education
This course studies the integration of art, music and movement for young children using an interdisciplinary approach. Investigation of the objectives, methods and materials in the fine arts are conducted.

ED 250 **4 cr. 5 hr.**
Pre-Kindergarten Clinical
This course provides an opportunity for those interested in working with pre-kindergarten age children to create a learning environment using free and inexpensive materials. Students will create learning devices, design the room layout, and develop program ideas. Learning activities with young children will be conducted under supervision. Day care and preschool licensing will be explored.

ED 270 **4 cr. 5 hr.**
Parent-Child Relations in Education
This course explores the role of the parent in the development of the child and how the parent relates to the educational system. This course will stress awareness of how parents stimulate the growth of behavioral trends in their children, as well as their usefulness as resources to improve the educational environment of the child.

***ED 306** **3 cr. 3 hr.**
Methods and Materials in Early Childhood Education
This course includes a hands-on workshop and exploration of all areas of the curriculum. In doing so students will research and prepare games and devices appropriate to an early childhood classroom. Elective for all education majors.

ED 310 **3 cr. 5 hr.**
Science, Math, and Social Studies in Early Childhood Education
Emphasis is placed on the development and demonstration of instructional techniques and materials in science, math, and social studies that are appropriate for heterogeneous groups of young children.

ED 311 **4 cr. 5 hr.**
Behavioral Science in Early Childhood II: Learning and Assessment
This is a continuation of ED 211. (ED 211 and ED 311 cannot be taken simultaneously.)

ED 384 **6 cr.**
Student Teaching in Early Childhood Education I
Each student is required to have a station of student teaching in a kindergarten.

ED 385 **6 cr.**
Student Teaching in Early Childhood Education II
Each student is required to have a student teaching station at the primary level.

ED 405 **4 cr. 5 hr.**
Senior Seminar in Early Childhood
This course covers an examination of the historical perspectives and philosophical orientations in the field of early childhood education. Specific attention is given to an analysis of current issues and programs. Practicum experiences will be required. Required of Early Childhood majors.

3. Elementary Education (1-6)
The Elementary Education Program prepares students to become teachers of children in grades one through six. A graduate is eligible for Massachusetts certification as an Elementary Teacher.

The degree of Bachelor of Science in Education, Elementary, must include AR 100 or 120; BI 181; ED 300, 303, 304, 305, 350, 360, 386, 410; EN 290; MA 100 or above, 283; MU 100; PY 110, 221, 275; SE 405. The student must also apply at least fifteen semester hours toward an area of specialization.

Specialization for Elementary Major

All Elementary majors must select and complete a specialization from one of the following areas: Art, Behavioral Sciences, English, Foreign Language, Geography, History, Mathematics, Music, Physical Education or Science. Requirements for these specializations are found below.

Art Specialization
Students in the Elementary Curriculum who wish to specialize in Art may do so by electing courses under the guidance of the Art Department.

Behavioral Sciences Specialization
Students in the Elementary Curriculum who wish to specialize in Behavioral

Sciences may do so by electing 24 semester hours under the guidance of the Behavioral Science Department.

English Specialization
Students in the Elementary Curriculum who wish to specialize in English may do so by electing 18 semester hours in English, 6 hours of which should be taken from the following courses: English Literature I, English Literature II, American Literature I, and American Literature II.

Foreign Language Specialization
Students in the Elementary Curriculum who wish to specialize in French or Spanish may do so by attaining the minimum proficiency level of FR 310 or FR 340 or SP 310 or SP 340 and taking either FR 288 or SP 488.

Geography Specialization
Students in the Elementary Curriculum who wish to specialize in Geography may do so by electing 15 semester hours of Geography under the guidance of the Geography faculty from the Geography elective offerings.

History Specialization
Students in the Elementary Curriculum who wish to specialize in History may do so by electing 15 semester hours of History under the guidance of the Social Sciences Department from the History elective offerings.

Mathematics Specialization
Students in the Elementary Curriculum who wish to specialize in Mathematics may do so by electing 21 semester hours of Mathematics under the guidance of the Mathematics Department. Interested students should contact the elementary specialist advisor in the Mathematics Department for information and advice in planning a program of study. Courses elected to fulfill the requirements of the mathematics specialization are usually chosen from among CS 100, MA 100, MA 110, MA 120, MA 130, MA 150, MA 200, MA 210, MA 230, MA 240, MA 260, MA 300, MA 315 and MA 320.

Music Specialization
Students in the Elementary Curriculum who wish to specialize in Music may do so by electing the following under the guidance of the Music Faculty: MU 200, 220 (or equivalent), 420, 430, 440, 450, 480. Three semesters of any combination of MU 410 and/or 400 and two Music Electives are required.

Physical Education Specialization
Students in the Elementary Curriculum who wish to specialize in Physical Education should elect PE 308, 400, 401, 407 and 6 semester hours of physical activity skills.

Science Specialization
Students in the Elementary Curriculum who wish to specialize in Science may do so by electing 15 semester hours of science under the guidance of the Biology or Chemistry or Physics Departments.

Elect 15 hours from the following: BI 100, 110, 140, 160, 230, 260, 290, 310; CH 110, 120; GE 210; PH 110, 120.

The Minor in Elementary Education

The minor in Elementary Education consists of 18 semester hours:

ED 300
Principles and Practices of Elementary Education,
ED 304
Foundations of Education
ED 303
Reading in Elementary Education
MA 283
Methods and Materials in Elementary Mathematics *or*
BI 181
Science in Elementary Education

Two of the following courses:

ED 350
Creative Arts in Elementary Education
ED 410
Language Arts in Elementary Education
SE 405
Issues in Mainstreaming

The minor of 18 s.h. is not intended to and does not meet Massachusetts certification requirements for elementary school teachers.

Before applying for this minor, the student should have successfully completed PY 221 Child Psychology.

ED 01 **1 cr. 2 hr.**
Personal Reading Improvement
Individualized reading programs are tailored to meet the particular needs of each student. Students experiencing difficulty in understanding what they read engage in programs stressing comprehension skills. Students with good comprehension but with slow reading rates receive assistance in acquiring skills to at least double their speed. Additionally, all students are given instruction in reading at different rates for different purposes.

Each student's program is completed after ten weeks or thirty hours of instruction. Students are free to select any three hours in the week—from 8:30 a.m. to 4:30 p.m. One credit per semester.

ED 280 **15 cr. 45 hr.**
Integrated Creative Arts Teacher Education Program
This is a full-semester experience which includes five weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, and integrating art forms). Subsequent to the initial period, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils so as to foster the pupils' personal expression through creation in the arts.

A weekly seminar on Wednesday afternoons from 1:00 to 3:00 will be held at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a full-time basis ordinarily throughout the semester. They will be visited and evaluated regularly by College faculty as well as by cooperating teacher-specialists in the schools.

ED 300 **3 cr. 3 hr.**
Principles and Practices of Elementary Education
This course includes an examination of the theoretical and practical knowledge of the teaching learning process. Students will demonstrate competencies in the areas of planning, curriculum design, and evaluation. Focus will be placed on the needs and learning styles of the elementary school child and the instructional strategies used to effectively meet those needs. In addition, classroom management skills and techniques will be emphasized. A field experience is an integral part of the course.
Prerequisite: PY 221.

ED 303 **3 cr. 3 hr.**
Reading in Elementary Education
This course includes an examination of the reading process, methods of evaluation and strategies for beginning reading. Reading skills and procedures for developing these skills are examined and current approaches to the teaching of reading are evaluated. The student will be made cognizant of methods of grouping and evaluation procedures. A practicum is required.
Prerequisite: PY 221, ED 300.

ED 304 **3 cr. 3 hr.**
Foundations of Education
This course covers a study of the professional aspects of teaching, the school's role in society, the organization and support of American education, the historical foundations of education and its philosophical bases. Issues affecting curriculum development and the future of American education are considered.

ED 305 **3 cr. 3 hr.**
Reading Diagnosis and Remediation
This course provides students with the competencies necessary to diagnose and correct reading problems in their own future classrooms and the skills of administering, scoring, and analyzing informal Reading Inventories. The student will test a child and plan a program of instruction for that child. Emphasis is

also placed on the development and utilization of instructional materials.
Prerequisite: ED 210 or ED 303.

ED 350 3 cr. 3 hr.
Creative Arts in Elementary Education
Students will experience the analogous elements of the arts in a series of workshops. Students will then devise lessons which they will present in class for evaluation and use in a practicum.

ED 360 3 cr. 3 hr.
Social Studies in Elementary Education
This course will equip the future teacher with the knowledge, teaching strategies and sequential course development necessary to teach this critical area in the elementary school.
Prerequisite: ED 300.

ED 386 12 cr. 25 hr.
Student Teaching in Elementary Education
Each student is required to have a full semester of student teaching consisting of two experiences at the elementary level.

ED 400 3 cr. 3 hr.
Analysis of Reading Problems
The course will examine the correlates of reading problems, identify principles of diagnosis, and analyze, administer and interpret formal diagnostic tests. Students will demonstrate competency in preparing a case study report.
Prerequisite: ED 210 or ED 303.

ED 410 3 cr. 3 hr.
Language Arts in Elementary Education
This course provides students with an introduction to the nature of language and language growth. Emphasis is placed on the meaning and importance of language arts as well as focusing on the characteristics of elementary school age children that affect and are affected by the language arts program. Stress is placed on elements of writing, speaking, listening, spelling and handwriting. A field experience is an integral part of the course.
Prerequisite: ED 300.

***ED 488 3 cr. 3 hr.**
Introduction to Learning Disabilities
This course includes a study of some of the causes of school learning disabilities at the Elementary level. Specific techniques and remediation exercises will be discussed.

ED 490 3 cr.
Independent Study in Education
This course provides students in early childhood, elementary, and secondary education with the opportunity to do research with staff guidance in a problem in education. It is limited to juniors and seniors.
Prerequisite: permission of Department.

4. Secondary Education (5-9, 9-12)
The Secondary Education Program prepares students majoring in Biology, English, Geography, History, or Mathematics to become secondary school teachers in grades five through nine and nine through twelve. Graduates are eligible for Massachusetts Certification as a Teacher of Biology (9-12), Earth Science (5-9, 9-12), English (9-12), Geography (5-9, 9-12), History (9-12), or Mathematics (9-12).

The course requirements for the degree of Bachelor of Science in Education, Secondary, in Biology, English, Geography, History, and Mathematics are to be found under each of the above majors in this catalog.

The Minor in Secondary Education

The minor in Secondary Education consists of 30 semester hours as follows:

PY 223 Adolescent Psychology
ED 301 Successful Practices in Secondary Education
EN 470 Teaching Writing to Secondary Students
ED 364 Reading in the Secondary School
PY 275 Tests and Measurements
BI 488, EN 488, GE 488,
HI 488, MA 281 or ED 368
Special Methods of Teaching in the Modern Secondary School
BI 386, 387 Biology Student Teaching
EN 498 English Student Teaching

GE 498 Geography Student Teaching
GE 499 Student Teaching in Earth Science
HI 391 History Student Teaching
MA 498 Math Student Teaching

The minor of 30 s.h. does meet Massachusetts certification requirements for secondary school teachers. It includes all of the various departmental requirements of our secondary majors. The student is eligible for Massachusetts certification to teach in grades 9-12 in biology, English, geography, history, or math or grades 5-9 in geography. Because these programs have been approved by the Massachusetts Board of Education graduates are assured initial certification upon application in thirty-one states under the Interstate Certification Compact.

ED 301 **3 cr. 3 hr.**
Successful Practices in Secondary Education
This course provides an opportunity to experience many teacher roles at the secondary school level. The student serves as a tutor in a public school, develops curriculum and instructional material, and designs, presents, and critiques a micro-lesson.

***ED 364** **3 cr. 3 hr.**
Reading in the Secondary School
This course includes investigation of the reading process, discussion of current evaluative methods, analysis of the reading skills, and procedures for development.
Prerequisites: PY 223, ED 301.

ED 387 **12 cr. 25 hr.**
Student Teaching in Secondary Education
Students are assigned to cooperating schools for a semester of student teaching.

English

Chairman
Terry Grabar

Professors
William Barker
Terry Grabar
Leo Hines
William Keough
Marilyn McCaffrey
Lawrence Quigley

Assoc. Professors
Judith Budz
Erwin Pally
Louis Shepherd
Robert Welch

Asst. Professors
Colin Bourn
George Case
Eugene Casassa
Joseph Finkel
Irene Harris
Marie McAllister
John McGrail
Irene Miranda
Robert Tapply
Nancy Yee

The Bachelor of Arts in English (Literature) requires English Literature I, II, and III (EN 220, 221, 222) and at least 21 semester hours in English electives. Second year proficiency in a foreign language is required.

The Bachelor of Arts in English (Professional Writing) requires 36 hours in English, including English Literature I, II, and III (EN 220, 221, 222), Advanced Expository Writing (EN 450), and nine hours from the following courses: Discussion and Conference Techniques (SH 140), Public Speaking (SH 160), Journalism (EN 430), Journalism Practicum (EN 431, 432), Creative Writing (EN 380), Writing for Business and Technology (EN 441), Magazine (EN 433), Feature and Magazine Writing (EN 422).

The Bachelor of Arts in English (Literature) requires English Literature I, II, and III (EN 220, 221, 222) and at least 21 semester hours in English electives. Second year proficiency in a foreign language is required.

The Bachelor of Arts in English (Professional Writing) requires 36 hours in English, including English Literature I, II, and III (EN 220, 221, 222), Advanced Expository Writing (EN 450), and nine hours from the following courses: Discussion and Conference Techniques (SH 140), Public Speaking (SH 160), Journalism (EN 430), Journalism Practicum (EN 431, 432), Creative Writing (EN 380), Writing for Business and Technology (EN 441), Magazine (EN 433), Feature and Magazine Writing (EN 422).

Also recommended are 6, 9, or 12 hours of internship. Only 6 hours are recommended for credit toward the major.

The Bachelor of Science in Education, Secondary, in English requires English Literature I, II, and III (EN 220, 221, 222), Teaching Writing to Secondary Students (EN 470), General Psychology (PY 110), Adolescent Psychology (PY 223), Tests and Measurements (PY 275), Successful Practices in Secondary Education (ED 301), Reading in the Secondary School (ED 364), Student Teaching in English (EN 498), and at least 18 hours of electives in English.

The Minor in English has two tracks, each requiring 18 hours in English courses.

Track A

Concentration in Literature, requires: 6 hours from EN 220 English Literature I, EN 221 English Literature II, EN 222 English Literature III, EN 200 American Literature I, and EN 210 American Literature II; 9 hours in literature electives; 3 additional hours in English.

Track B

Concentration in Professional Writing requires: 6 hours from EN 220 English Literature I, EN 221 English Literature II, EN 222 English Literature III, EN 200 American Literature I, EN 210 American Literature II; EN 450 Advanced Expository Prose; 6 hours in advanced writing courses: EN 430 Journalism, EN 431 Journalism Practicum I, EN 432 Journalism Practicum II, EN 433 American Magazine, EN 440 Writing for the Natural and Social Sciences, and EN 441 Writing for Business Technology; 3 additional hours in English.

EN 001
Writing Skills Workshop
This course provides an intensive study of the basic writing skills. It cannot be taken simultaneously with either English Composition I or II (EN 100, 120). It may be taken 3 times for 1 credit per semester.

EN 100 **3 cr. 3 hr.**
English Composition I
Students practice expressing ideas with precision, clarity, and economy, and write a research essay. Critical reading is included.

EN 120 **3 cr. 3 hr.**
English Composition II
This course continues English Composition I (EN 100), with more advanced introduction to literature and critical analysis of poetry, prose, and drama.
Prerequisite: a passing grade in English Composition I (EN 100).
Prerequisite for all English electives: English Composition I and II (EN 100, 120).

EN 200 **3 cr. 3 hr.**
American Literature I
Representative American writers from Colonial days through the Civil War are studied.

EN 210 **3 cr. 3 hr.**
American Literature II
Students read representative American writers since the Civil War.

EN 220 **3 cr. 3 hr.**
English Literature I
This course examines British writers from the old English period through the 16th Century.

EN 221 **3 cr. 3 hr.**
English Literature II
This course covers 17th and 18th Century British writers.

EN 222 **3 cr. 3 hr.**
English Literature III
British writers of the Romantic, Victorian, and modern periods will be read and discussed.

EN 240 **3 cr. 3 hr.**
World Literature I
European literary masterpieces from the beginning through the middle of the 17th century are analyzed.

EN 250 **3 cr. 3 hr.**
World Literature II
Students read European literary masterpieces from the mid-17th century to the present.

EN 260 **3 cr. 3 hr.**
The Bible as Literature
This course examines the style, narrative techniques, symbols, and historical setting of the Old and New Testament writers.

EN 270 **3 cr. 3 hr.**
Classical Mythology
Students inquire into pre-Homeric stirrings of symbol and story; Virgil and Ovid and Roman traditions thereafter. The course will end with a study of the great flowering of mythology in the Renaissance.

EN 280 **3 cr. 3 hr.**
Other Voices
Significant writing by immigrants, Blacks, Indians and others. Considered aesthetically, socially, politically.

EN 290 **3 cr. 3 hr.**
Children's Literature
This course focuses on a wide range of subjects with criteria for evaluation of books, for related library sources, for book fairs, and for school and classroom library needs.

EN 291 **3 cr. 3 hr.**
Literature for Young Adults
Students do wide reading of literature written for the teenager. Different types of literature such as science fiction, fantasy, television plays, realistic novels and poetry will be read and criteria for their selection examined.

***EN 300** **3 cr. 3 hr.**
World Drama
Significant and representative plays from the beginning to the modern period are studied.

***EN 302** **3 cr. 3 hr.**
Modern Drama
Students read the works of such playwrights as Ibsen, Chekhov, Sartre, Brecht, Ionesco, Beckett, and Pinter.

EN 310 **3 cr. 3 hr.**
The World Novel to 1914
Students read significant novels representing various countries and periods as well as stages in the development of this literary form.

***EN 311** **3 cr. 3 hr.**
The World Novel Since 1914
Modern novels are studied both aesthetically and as human documents.

EN 320 **3 cr. 3 hr.**
The Short Story
This course includes significant stories of some of the great writers of the Western world, showing the evolution of the short story form.

EN 325 **3 cr. 3 hr.**
Love and Hate in American Fiction
This course focuses on American writers and the world of emotions in The Scarlet Letter, A Farewell to Arms, the Great Gatsby, Deliverance and others.

EN 330 **3 cr. 3 hr.**
Women and Literature
Literature by and about women is studied.

EN 350 **3 cr. 3 hr.**
Literary Criticism
Critical theory and practice from Aristotle through the 20th century is studied.

EN 360 **3 cr. 3 hr.**
The American Pastoral Spirit
This course studies the countryside as a source of literary inspiration from the Horatian concept of rural retirement to the post-industrialism of the late 20th century. Attention will be given to the current literature of the back-to-land movement.

***EN 380** **3 cr. 3 hr.**
Creative Writing
Students who have completed English Composition I and II (EN 100, 120), are

eligible for this course. Approval of the instructor is required.

EN 400 **3 cr. 3 hr.**
The Middle Ages
Students examine the many different forms the literature of the British Isles took before Shakespeare.

EN 401 **3 cr. 3 hr.**
Chaucer and his World
This course emphasizes the Canterbury Tales and their Medieval background.

EN 402 **3 cr. 3 hr.**
Shakespeare's Drama
This course will focus upon several history plays as well as one comedy and one tragedy. An emphasis will be placed on Shakespeare's interpretation of political life and leadership.

EN 403 **3 cr. 3 hr.**
Shakespeare's Thought
The course will emphasize the conception of human destiny Shakespeare developed in his comedies and tragedies. The plays will be examined for their psychological, philosophical and religious meanings.

***EN 404** **3 cr. 3 hr.**
Major English Writers of the 17th Century
Students examine the drama of Jonson, Webster, Middleton, Congreve; the poetry of Milton, Jonson, Donne, Herbert, Herrick, Marvell and Dryden; the prose of Browne and Dryden.

EN 405 **3 cr. 3 hr.**
The Novel in the Eighteenth Century
This course covers the origins of the novel in England and its development as a reflection of the tastes of a rising middle class. Readings include Defoe, Richardson, Fielding, Johnson, Austen and others.

EN 406 **3 cr. 3 hr.**
The Age of Satire: 1700-1750
Emphasis is on the importance to the age of standards in life as well as in literature, the public responsibilities of the writer, and the various ways that humor is used as a weapon for social purposes.

EN 407 **3 cr. 3 hr.**
From Classic to Romantic: 1750-1800
Changing values in philosophy, the nature of man and politics are examined, as well as the reflection of these changes in the art, music, and literature of the late 18th Century.

EN 408 **3 cr. 3 hr.**
Romanticism
Works of writers from Wordsworth through Byron, are read.

EN 409 **3 cr. 3 hr.**
The Nineteenth-Century English Novel
This course will cover significant novels demonstrating the changing cultural milieu and varying approaches of the genre during this period.

EN 410 **3 cr. 3 hr.**
Victorian Literature
Man's relationship to a changing society in the face of nineteenth-century industrialization and scientific progress, will be studied in the major writers of the period.

EN 411 **3 cr. 3 hr.**
The Last Victorians
The Wilde 90's, Edwardian exuberance, and World War I are collated with modern trends in poetry, prose, and drama.

EN 412 **3 cr. 3 hr.**
Twentieth Century Irish Fiction
The literature covered runs from James Joyce through Brian Moore, including O'Faolain, O'Connor, O'Flaherty McGahern.

EN 413 **3 cr. 3 hr.**
20th Century Irish Drama and Poetry
Poets, from Yeats through Montague, Kinsella, Heaney; playwrights, from Synge and O'Casey through Beckett and Friel.

EN 414 **3 cr. 3 hr.**
Modern Poetry
Chief modern poets of America and England are covered.

EN 420 **3 cr. 3 hr.**
The Romance in America
Concepts of nature, idealism and community are studied in the works of Hawthorne, Poe, and others.

***EN 421** **3 cr. 3 hr.**
Major American Writers of the Twentieth Century
The varied creativity of American writers of fiction, drama, poetry, criticism, and the essay since World War I is examined.

***EN 422** **3 cr. 3 hr.**
American Novel 1890-1950
The reading entails a close examination of several representative works by major American novelists of this period.

EN 423 **3 cr. 3 hr.**
American Novel since 1950
Seven or eight major novels are closely analyzed.

EN 425 **3 cr. 3 hr.**
The Gatsby Myth
The emphasis on money, love and status in the novels of the 20's and 30's: Fitzgerald, Hemingway, Wolfe and Dreiser.

EN 430 **3 cr. 3 hr.**
Journalism
Students read in the mass media and do individualized writing assignments. There is some emphasis on the technical aspects of newspaper work.

EN 431 and 432 **3 cr. 3 hr.**
Journalism Practicum: (P1 and P2)
This course is open to members of the Strove staff, and other students engaged in appropriate on-campus or off-campus journalistic activities. (P1 and P2 may be taken separately for a total of 6 credits.)

EN 433 **3 cr. 3 hr.**
The American Magazine
Students do a close study of significant American magazines: their editorial policies and requirements, audience slant, advertisements, visual layouts.

EN 440 **3 cr. 3 hr.**
Writing for the Natural and Social Sciences
This course provides for individualized work in writing appropriate for those taking courses in physical and life sciences, psychology, human services, and other social sciences.

EN 441 **3 cr. 3 hr.**
Writing for Business and Technology
A study of writing for students interested in business, industry, and management. The work includes business correspondence, descriptions of processes and mechanisms, sets of instructions, proposals, abstracts, reports, etc.

EN 442 **3 cr. 3 hr.**
Feature and Magazine Writing
Writing feature articles for newspaper, magazine and trade journals.

EN 450 **3 cr. 3 hr.**
Advanced Expository Writing
Focused on writing as process, this course is designed to enable student writers to control the broad range of rhetorical principles underlying effective writing in any field. Related grammatical, linguistic, and philosophical questions.

EN 460 **3 cr. 3 hr.**
The Structure and the Nature of Language
Language systems and grammatical theories are studied, along with the history of the English language, theories of language acquisition, and psycholinguistic and sociolinguistic topics.

EN 470 **3 cr. 3 hr.**
Teaching Writing to Secondary Students
Students do practice and research in alternatives for teaching writing in secondary schools. Different approaches are explored through experiments for the teacher and opportunities to test

these approaches in prepracticum experiences.

EN 488 **3 cr. 3 hr.**
The Teaching of English
The methodology of English is examined (lesson planning, selection of materials, curriculum development, review of relevant research).

EN 489 **12 cr.**
Internship
The English Department Internship Program offers junior and senior English majors an opportunity to gain valuable on-the-job experience for college credit by spending one semester (full-time or part-time) in business or industry. Students are placed in a field of their choice where they can use their abilities as communicators, learn new skills and sample a potential job market. An internship is a recommended component of the English Department Writing Track.

EN 490 **3 cr.**
Independent Study
English majors excelling in scholarship, may upon approval of both department head and advising instructor, undertake Independent Study.

EN 491 **1 cr.**
Independent Study

EN 492 **3 cr. 3 hr.**
Seminar
This is an opportunity for literary analysis and research, topic to be selected by the instructor. It is primarily for English majors, with others admitted by permission.

EN 494 **4 cr.**
Independent Study

EN 496 **6 cr.**
Internship

EN 497 **9 cr.**
Internship

EN 498 **3 cr. 3 hr.**
Student Teaching in English
Students are assigned to cooperating schools for a semester of student teaching.

Environmental Science

Coordinator
Howard Thomas

The Bachelor of Science in Biology Environmental Science includes all requirements of the Bachelor of Science in Biology. Additional requirements are six semester hours of earth science or geology, a course in computer science, ES 100, ES 270, and three semester hours of electives in Environmental Science. The major recommends that the General Education social sciences requirement be partially fulfilled by courses in geography, macroeconomics, environmental law and urban planning; and that courses in photography, drawing, ethics and technical writing be used to fulfill the humanities requirement in General Education.

Since not all courses are offered in any one year, the student interested in Biology Environmental Science is urged to consult closely with his/her advisor to design in advance a suitable selection and sequence of both required and elective courses.

ES 100 **1 cr. 1 hr.**
Seminar in Environmental Science
Offered: Fall and Spring Semesters. Survey of the practical scope of environmental science with special reference to the variety of activities performed by environmental scientists and the academic preparation and performance expected by potential employees. Relevance of various

disciplines to career preparation. Lectures, films, visits to private and governmental agencies, seminars and symposia by students, faculty and visiting representatives of government and industry. One hr. per week plus occasional additional hours.

ES 200 3 cr. 3 hr.
Adaptations
The human organism is examined in terms of its adaptation to acute and chronic stress. Physiological responses to such stressors as exercise, heat, and dark, altitude and nutrition are studied theoretically and in a laboratory setting.

ES 480 3-6 or 6-12 cr.
Internship in Environmental Science
Work experience in private or governmental concerns.
Offered: Fall and Spring semesters. Assignments depend on needs of participating organization and the interests and abilities of the student. Prerequisites: Junior or senior standing and permission of the Environmental Science Committee.

French

Assoc. Professors
Pierre Pinet
Jeanne Hambright

The Minor in French

The minor in French will require a minimum of 15 semester hours. Students must take Intermediate French I and II or be able to demonstrate proficiency at that level. Elementary French will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in French literature, composition, or culture which will yield the requisite 15 hours of credit. For those students starting French above the intermediate level, FR 490 Advanced French Independent Study, may be repeated for credit.

FR 100 **3 cr. 4 hr.**
French for Beginners I
Correct pronunciation, reading ability and fundamentals of grammar and syntax. French gradually becomes the working classroom and laboratory language. For students with no language experience or less than two years high school level. Students with two or more years not admitted without permission of instructor.

FR 110 **3 cr. 4 hr.**
French for Beginners II
A continuation of FR 100.

FR 200 **3 cr. 4 hr.**
Intermediate French I
Conversation and laboratory practice; readings stressing life, customs and culture of France.
Prerequisite: two years of high school, French II and/ or Instructor's permission.

FR 210 **3 cr. 4 hr.**
Intermediate French II
A continuation of FR 200.

FR 288 **3 cr. 3 hr.**
Methods for Teaching French in the Elementary School
Techniques and materials for use in elementary school. Required for foreign language specialization. Minimum of 12 semester hours of French or its equivalent and Instructor's permission is required.

FR 300 **3 cr. 3 hr.**
French Civilization
The history, geography, fine arts and literature of the French people from the earliest times through today. Extensive readings in French.
Prerequisite: FR 210 or instructor's permission.

FR 330 **3 cr. 3 hr.**
French Literature I
A survey of the main currents of French literature from the Middle Ages through the 18th century.
Prerequisite: FR 210 or Instructor's permission.

FR 340 **3 cr. 5 hr.**
French Literature II
A continuation of French Literature I including literature of the 19th and 20th centuries.

FR 350
French Conversation and Composition
For students desiring greater fluency in speech and writing. Recommended for civilization and literature courses.
Prerequisite: FR 210 or instructor's permission.

FR 490 **3 cr. 3 hr.**
Advanced French Independent Study
Prerequisite: Minimum of 12 semester hours, 2.0 grade-average in French, and permission of Instructor, Department Chairman.

Geography Earth Science

Professors
James Barbato
Robert Champlin

Assoc. Professor
Robert Gardula

The degree of Bachelor of Science and Bachelor of Arts in Geography each require a minimum of 36 semester hours of course work, including GE 100 and the remainder chosen from among courses in the following areas: Earth and or Environment Science, Urban-Community development and/or Public Service, or Area Development. Courses are structured so as to prepare the student for employment or graduate work. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

The degree of Bachelor of Science in Education, Secondary, in Geography must include GE 100, 88; PY 110, 223, 275; ED 301, EN 470, GE 498 or 499; and 27 semester hours in Geography electives. Students may meet the state certification requirement for teaching Earth Science, as well as Geography, by taking 18 semester hours in related courses which should be chosen after consultation with a member of the geography faculty.

The Minor in Geography

The geography minor consists of GE 100, Introductory Geography, and five additional geography courses chosen in conjunction with one of the geography earth science faculty.

GE 100 **3 cr. 3 hr.**
Introduction to Geography
The interrelationships between the physical and cultural elements of man's environment.

GE 110 **3 cr. 3 hr.**
Principles of Human Geography
An introduction to the elements and processes underlying economic, social, and political geographic patterns, with applications to actual case studies and situations.

Physical, Earth, and Environmental Courses

GE 130 **3 cr. 4 hr.**
Earth, Sea and Air
Selected topics from the earth sciences. A laboratory science.

GE 210 **3 cr. 4 hr.**
Geology
An introductory survey of the basic elements of physical and historical geology. Laboratory required. Open to all students. GE 100 strongly suggested.

GE 320 **3 cr. 4 hr.**
Introduction to Historical Geology
This course studies the physical history of the earth based on evidence from the rock and fossil record from the early Paleozoic Era through the present. The evolution of life forms, subjective and absolute dating methods, fossil identification and fossil evidence supporting plate tectonic theory are some of the topics studied. Laboratory required.
Prerequisite: GE 210 or permission of Instructor.

GE 327 **3 cr. 4 hr.**
Common Rocks and Minerals
Major rock and mineral types will be studied. Considerable time will be spent on field and laboratory identification techniques. Mineral crystal systems and rock and mineral forming processes will also be studied.
Prerequisite: GE 210 or CH 110.

GE 400 **3 cr. 4 hr.**
Atmospheres I — Meteorology
Fundamental principles of weather systems. Emphasis will be on mid-latitude phenomena and weather forecasting. Topics in tropical meteorology and severe storm phenomena will be discussed. Laboratory required.

GE 410 **3 cr. 3 hr.**
Atmospheres II — Climatology
Regional differentiation of the climatic zones of the major land and ocean areas of the world. Special attention will be given to urban climatology and the energy and moisture climatology of the earth.
Prerequisites: GE 400 Meteorology or permission of the Instructor.

GE 411 **3 cr. 3 hr.**
Atmospheres III — Planetary Atmospheres
This course seeks to explain the similarities and differences between the earth's atmosphere and the atmospheres of the planets and moons in our solar system. Each atmosphere will be studied to determine its chemical composition, thermal structure, energy budget, pressure, wind systems, clouds, precipitation and other pertinent meteorological phenomena.
Prerequisite: GE 400.

GE 420 **3 cr. 3 hr.**
Geomorphology
A comprehensive study of land forms and their origins.
Prerequisites: GE 210 Geology or permission of the Instructor.

GE 430 **3 cr. 3 hr.**
Oceanography
A study of the physical and chemical properties of sea water, atmosphere interaction with the sea surface, currents and volume flow, the energy budget of the oceans, and the submarine geology of the ocean basins including a thorough discussion of ocean floor spreading.

GE 460 **3 cr. 3 hr.**
Selected Topics in Environmental Geology
Basic principles of geology and geomorphology will be applied to the study of environmental problems caused by such natural phenomena as earthquakes, landslides, flooding, groundwater contamination, pollution, pollution caused by the mining and use of fossil fuels, etc. Data from actual events will be studied and utilized when considering the special problems these natural events cause to man.
Prerequisites: GE 210 or GE 420 or the equivalent.

GE 470 **3 cr. 3 hr.**
Geographic Perspectives on Conservation
An analysis of natural resources problems arising from changes in technology, population pressure, and concern with the quality of environment.
Prerequisite: GE 100.

Economic and Cultural Geography

***GE 120** **3 cr. 3 hr.**
Transportation Geography and Planning
An integrated approach to transportation planning. Various modes and complementary land use factors will be explored. Includes different transportation surveys, types of facilities to accomodate these movements, methods of physiographic and social value assessment for sizing and locating transport facilities. Some case studies.
Prerequisite: GE 110.

GE 300 **3 cr. 3 hr.**
Economic Geography
Analysis of factors underlying the spatial distribution of primary, secondary, and tertiary economic activities, with emphasis on locational processes in commercial economics.

***GE 310** **3 cr. 3 hr.**
Political Geography
Dependent and independent political units, boundary disputes, strategic areas, buffer zones and the function of international organizations.

GE 340 **3 cr. 3 hr.**
Developing Nations
Deals with selected demographic processes and population characteristics relative to resources in economically underdeveloped countries and regions. Involves both a systematic and regional view of world population problems.

GE 440 **3 cr. 3 hr.**
Urban Geography
Analysis of the external relationships and internal structure of cities, with emphasis on the spatial attributes of contemporary urban qualities and problems in America. Classroom activities are supplemented by applied studies in the greater Fitchburg-Leominster area.

***GE 457** **3 cr. 3 hr.**
Land Use Planning
The course is designed to develop and utilize physical and socioeconomic planning skills in land use planning. First half of course concentrates on the principles and application of physical and socioeconomic planning factors. Second half of the course is a case study with the student acting as a team member in the assessment of a development project.
Prerequisites: GE 100, 110 or BI 230 or 260.

Methods and Techniques

GE 280 **3 cr. 3 hr.**
Map Use and Interpretation
This course considers the nature and role of maps in communicating aspects of the earth's natural and human environments. Involved are: a) Map Reading: relating map symbols to real-world features, b) Map Analysis: extracting information from maps, and c) Map Interpretation: seeking explanations for environmental patterns depicted in a maps system of symbolization.

GE 450 **3 cr. 4 hr.**
Remote Sensing of the Environment
Techniques in the use of maps, satellite and aerial imagery as applied to landscape analysis and resource management.
Prerequisite: GE 210.

GE 480 **3 cr. 4 hr.**
Cartography
Treats the principal aspects of cartography as a communication process. Considers the nature and purpose of mappable information, elements of map design, and methods involved in map construction.

GE 482 **3 cr. 3 hr.**
Advanced Cartography
The examination and application of the principles of map layout, complication, and design. The course involves the construction of multi-variable maps and the production of several specialized map types.

GE 488 **3 cr. 3 hr.**
Special Methods in Teaching Geography
Lesson planning, selection of materials, curriculum development, review of relevant research.
Prerequisites: CM 020 and ED 301.

U.S. and Foreign Area Studies

Regional and systematic analysis based upon geographic elements influencing domestic evolution and international relations.
Prerequisite: GE 100.

GE 320 **3 cr. 3 hr.**
U.S. and Canada

GE 330 **3 cr. 3 hr.**
Latin America

GE 350 **3 cr. 3 hr.**
Europe

GE 360 **3 cr. 3 hr.**
Asia

GE 380 **3 cr. 3 hr.**
Africa

GE 484 **3 cr. 6 hr.**
Internship in Geography
Work experiences in private and governmental concerns. Assignments depend on the needs of the participating agency and interests and vocational objectives of the student.
Prerequisites: Junior or Senior standing and permission of Internship coordinator.

GE 490
Independent Study in Geography
Provides exceptional students the opportunity of research with faculty guidance in a subject or problems of geographic significance.
Prerequisites: 12 hrs. of Geography and permission of Instructor. Hours and credit by arrangement.

GE 498 **6 cr. 6 hr.**
Student Teaching in Geography
Student Teaching Practicum in geography. Students are assigned to cooperating schools for a semester of student teaching.

GE 499 **6 cr. 6 hr.**
Student Teaching in Earth Science
Student Teaching Practicum in earth science. Students are assigned to cooperating schools for a semester of student teaching.

German

Professor John Burke

Assoc. Professor Jeanne Hambright

The Minor in German

The minor in German will require a minimum of 15 semester hours. Students must take Intermediate German I and II or be able to demonstrate proficiency at that level. Elementary German will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in German literature, composition, or culture which will yield the requisite 15 hours of credit. For those students starting German above the intermediate level, GR 490 Independent Study, may be repeated for credit.

GR 100 3 cr. 4 hr.
German for Beginners I
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. German gradually becomes the working classroom. Use of German Language films, cassettes, and utilization of Apfeldeutsch, a computer course for German. Students with two or more years not admitted without permission of the instructor.

GR 110 3 cr. 4 hr.
German for Beginners II
A continuation of German 100.

GR 200 3 cr. 4 hr.
Intermediate German I
Conversation and laboratory practice; readings stress the life, customs, and culture of Germany.
Prerequisite: Two years of high school German or GR 100 and GR 110.

GR 210 3 cr. 4 hr.
Intermediate German II
Continuation of GR 200.

***GR 300 3 cr. 3 hr.**
German Civilization
The history, geography, fine arts and literature of the German people from earliest times to the present. Extensive readings in German.
Prerequisites: GR 210 or permission of the Instructor.

***GR 330 3 cr. 3 hr.**
German Literature
Representative works of German literature from the Niebelungenlied to the Tin Drum. Conducted in German.
Prerequisites: GR 210 and/ or Instructor's permission.

***GR 350 3 cr. 3 hr.**
German Conversation and Composition
This course is designed to increase the student's ability to write and speak German. Students will be expected to write compositions on topics developed orally in class.
Prerequisites: GR 210 or permission of the Instructor.

***GR 360 3 cr. 3 hr.**
Modern German Literature in Translation
An introduction to the varied creativity of German writers of fiction, drama, and poetry of the 20th century. The German film contribution of the 1920's with feature-length films will be included. Readings will be in translation and the course will be conducted in English.

***GR 370 3 cr. 3 hr.**
Modern German Culture: "The Road to Hitler"
Given in English. An examination of the cultural factors in music, art, literature and film which illuminate the events leading to National Socialism. Readings will focus to translated materials especially in literature which help to explain why the Germans embraced Adolph Hitler. Includes a significant audio-visual component.

GR 490
Independent Study in German
Open to students in the language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

History

Professors	*Asst. Professors*
Lawrence Arnold	Norman Carson
George Merriam	John Clark
Pasquale Micciche	Douglas Hebb
Donald Norton	
Edmund Thomas	

The Bachelor of Science and Bachelor of Arts in History must include HI 110, 112, 210, 220, 400; one course from HI 180, 190, 407, 408, 401, 260 or 460; one elective from European History; one elective from U.S. History; and an additional 6 semester hours of History electives. The Bachelor of Arts requires foreign language proficiency at the second year college level.

All B.A. and B.S. candidates must have a minor.

Candidates for the Bachelor of Arts may choose their minor from either the Humanities or the Social Sciences. Candidates for the Bachelor of Science may choose their minor from either the Social or Behavioral Sciences. Fifteen semester hours of courses are required for a minor. A Bachelor of Arts in History with a concentration in European Studies must include HI 110, 112, 210, 220, 400 and 12 Semester hours of History electives of which at least 9 semester hours are in European History and 15 semester hours of related courses of which at least 3 semester hours each in the areas of Geography, Art, Philosophy and Literature. The latter courses must be chosen from the list of courses applicable to the European Studies concentration. This degree must also include proficiency in a modern European language at the third year college level.

A Bachelor of Science in Education, Secondary, in History must include PY 110, 223 and 275; HI 110, 112, 210, 220, 400, 488; one course from HI 180, 190, 407, 460, 260; one elective from European History; one elective from U.S. History; and an additional 9 semester hours of History or courses related to History. The latter includes government, political science, economics, history or literature. The major must also include ED 301, ED 387, and EN 470.

The Minor in History ***18 cr.***

A student may complete a minor in history by taking 18 semester hours of history. Emphasis in the minor may be either on European History or American History (including Latin American History).

Minor in History with European Emphasis:

1. HI 112 Modern European History II

2. Either HI 210 or 220

3. Four additional courses in European History. (HI 490, Independent Study in History, may be used to fulfill 3 semester hours of this requirement provided the topic is one in European History.)

Minor in History with American Emphasis:

1. HI 220 United States History II

2. Either HI 110, 112 or 130

3. Four additional courses in United States or Latin American History. (HI 490, Independent Study in History, may be used to fulfill 3 semester hours of this requirement provided the topic is one in United States or Latin American History.)

The Minor in Irish Studies ***15 cr.***

HI 250
Irish History 1798-1850
HI 251
Irish History 1850-present
HI 412
Twentieth Century Irish Fiction
HI 413
Twentieth Century Irish Drama and Poetry

The remaining 3 semester hours must be completed by taking a 3 semester hour Independent study project in either Irish History or Literature.

HI 110 **3 cr. 3 hr.**
Modern European History I
The evolution of modern European ideas and institutions from the Renaissance to the Napoleonic era. Political events,

selected biographies, topics in cultural history, and economic and social changes.

HI 112 **3 cr. 3 hr.**
Modern European History II
Political developments, ideologies such as socialism and nationalism, the impact of science and technology, and the changing relationship of Europe to Africa and Asia.

HI 130 **3 cr. 3 hr.**
Medieval Europe
Major characteristics and institutions of medieval civilization. Within a chronological framework of political events, attention is given to topics in art, literature, philosophy, and religion.

HI 140, 150 **3 cr. 3 hr.**
British History **each semester**
The first semester covers the development of English government and culture from the earliest times to the reign of Queen Elizabeth I. The second semester covers from 1603 to the present with emphasis on parliamentary government, the industrial and agricultural revolutions, the evolution of the British Empire and Commonwealth, and the position of Britain today.

HI 180 **3 cr. 3 hr.**
History of Mexico, Central America and the Caribbean
Both HI 180 and 190 survey pre-Columbian and colonial backgrounds, the clash and fusion of cultures, and the evolution of today's Latin American civilizations as they relate to specific geographical areas.

HI 190 **3 cr. 3 hr.**
History of South America
See HI 180.

HI 200 **3 cr. 3 hr.**
Introduction to Family History
An introduction to the study of change in the structure and function of the family, especially under the impact of industrialization and urbanization. Emphasis in readings upon the psychological, sociological, and historical evolution of the family as an institution. Interested students may write their own family histories in conjunction with the Anonymous Families History Project of the Family Institute University of Minnesota.

HI 210, 220 **3 cr. 3 hr.**
United States **each semester**
History I and II
A survey of the United States History beginning with colonial times and continuing through the era of Reconstruction following the Civil War the first semester. The second semester covers from Reconstruction to the present.

HI 230 **3 cr. 3 hr.**
American Women, 1870-1970
Women in America, the struggle against discrimination and for the ballot, the history of various women's groups, including working class, black, and immigrant women. Not merely the study of exceptional women but women as housewives, breadwinners, and citizens.

HI 241 **3 cr. 3 hr.**
The American Military Experience I
An introductory course in military history, which begins with the ancient Greeks and ends with the American Indian Wars in the 1890's. The course covers the major changes in leadership, tactics, strategy, and technology and their effects on the conduct of warfare.

HI 250 **3 cr. 3 hr.**
Irish History, 1798-1850
The Rebellion of 1798 and the Act of Union; O'Connell and Catholic emancipation; the rise of Irish nationalism, the great famine of 1845-50.

HI 251 **3 cr. 3 hr.**
Irish History, 1850 to the Present
The Home Rule movement; Parnell and the land league; the Celtic revival; the rebellion of 1916 and the civil war; the Republic of Ireland and Ulster in the twentieth century.

***HI 260** **3 cr. 3 hr.**
Africa
Sub-Saharan Africa from the earliest man to the 1960's. The development of trading empires and African cultures. The impact of Europe's "scramble for Africa." The struggle for independence and the launching of new nations.

HI 300 **3 cr. 3 hr.**
American Colonial History
Exploration, settlement patterns, imperial system, social structure, rise of representative government in America, and the 18th-century wars for empires.

HI 311 **3 cr. 3 hr.**
The American Revolution
The coming of the Revolution, war tactics and strategy, problems of the Confederation period and the American Constitution.

HI 312 **3 cr. 3 hr.**
The Age of Revolutions
Major political, social, and cultural developments in France, England, and the United States during the age of the American, French, and Industrial Revolutions, 1763-1848. The meaning and applicability of the term "revolution" will be examined, and there will be a series of case studies of topics such as art and politics, romanticism, and the religious revival in England. Extensive use is made of audio-visual materials.

HI 313 **3 cr. 3 hr.**
Twentieth-Century Europe
From the first World War to the present. Cultural, scientific, and social developments as well as domestic and international politics.
Prerequisite: HI 112 or permission of Instructor.

HI 320 **3 cr. 3 hr.**
The American Civil War and Reconstruction 1850-1865
Politics, slavery, and Lincoln's rise to power; political, military and diplomatic aspects of the war; failure of reconstruction.

HI 330 **3 cr. 3 hr.**
Progressive and New Deal America
Topics in American politics, economics, and Society from 1900-1945, with special emphasis on reform movements, the great Depression, and World War II.

HI 340 **3 cr. 3 hr.**
Topics in Cold War America
Recent American History from 1945 to the present. Topics include the Cold War, the Arms Race, Joseph McCarthy, the 1960's, the Vietnam War, Watergate, Society, the economy, and post-war presidents. Emphasis on post-war foreign policy as it has affected the United States.

HI 350 **3 cr. 3 hr.**
History of the Money Machine in the West, 1400-Present
A study in some depth of the evolution of money and banking in the Modern West with particular attention to the American experience. The concern is with the social and/or private purpose of these tools of exchange.
Prerequisite: Modern European History I and II, U.S. History I and II.

HI 351 **3 cr. 3 hr.**
American Labor, 1840-1960
A study of the patterns, personalities and social tensions involved in the responses of American Labor to the changing economic construction: from the pre-industrial society through the industrial to the post-industrial.
Prerequisite: U.S. History I and II.

HI 360 **3 cr. 3 hr.**
United States Industrial History I
The industrialization and urbanization of the United States from colonial times to 1870.

HI 371 **3 cr. 3 hr.**
United States Industrial History II
A continuation of HI 360 from 1870 to the present.

HI 380 **3 cr. 3 hr.**
History of the South
Slavery, the Confederacy, Reconstruction. Development of the Solid South, the Negro, and Civil Rights from a Southern view.
Prerequisite: HI 220 or permission of Instructor.

HI 390 **3 cr. 3 hr.**
Federalist Era 1789-1828
Early American nationalism with stress on the first American party system; economic nationalism, and foreign policy declarations.
Prerequisite: HI 210.

HI 391
Student Teaching in History
Student Teaching Practicum in history. Students are assigned to cooperating schools for a semester of student teaching.

HI 400 **3 cr. 3 hr.**
Historiography
An introduction to the historical method with stress on bibliographical aids, historical fallacies, and the theories of history as they have developed. Primarily for history majors.

HI 401 **3 cr. 3 hr.**
Modern German History
Germany since 1500 with emphasis on the last two centuries and its role in international politics.
Prerequisite: HI 112 or permission of Instructor.

HI 403 **3 cr. 3 hr.**
The U.S. In World Affairs: 1898 to the Present
The age of imperialism, World War I, the era of "isolation," origins of World War II, American involvement and wartime diplomacy, breakdown of East-West relations, the Cold War, the Korean and Vietnam conflicts.

HI 407 **3 cr. 3 hr.**
Imperial Russia
Founding of the Kievan State; the Mongol, Muscovite, and Imperial Periods to the Revolution of 1917.

HI 408 **3 cr. 3 hr.**
The Soviet Union
The Bolshevik seizure of power; attempts to implement Marxist theory; institutional development of the state, family education, and education.

HI 410 **3 cr. 3 hr.**
The Frontier in American History
The Frontier studied as a historical, social, economic, and psychological process to determine its impact on American development.

HI 420 **3 cr. 3 hr.**
The Republican Era, 1877-1912
Major movements of the late nineteenth and early twentieth centuries in United States History including Grangerism, Populism, urbanization, trade unionism, socialism, and progressivism.

HI 430 **3 cr. 3 hr.**
U.S. Foreign Relations: The First Hundred Years
Diplomacy of the Revolution, foreign relations of the new nation, the Monroe Doctrine and problems of boundaries and expansion, the Civil War and after to about 1890.

HI 432 **3 cr. 3 hr.**
The American Military Experience II
American military history from the Spanish-American War to the present. Integrates various elements of national security policy (military, political, diplomatic, economic, etc.) to provide an understanding of the problems of national security from a broad perspective.

HI 450 **3 cr. 3 hr.**
Tudor England 1485-1603
Political, social and religious developments from Henry VII to Elizabeth I. The Reformation, the rise of Puritanism, foreign affairs, constitutional developments.

HI 451 **3 cr. 3 hr.**
Stuart England 1603-1689
Political, social, religious and constitutional developments from

James I to William and Mary. Opposition to the early Stuarts, the civil war, the restoration and revolutionary settlements. Events of Irish and Scottish as well as English history.

HI 460 **3 cr. 3 hr.**
Contemporary Latin America
Latin America since World War II. A study of economic, cultural and political trends, agrarian reform and economic development.

HI 463 **3 cr. 3 hr.**
History and Culture of Puerto Rico
Political social, economic, and cultural development of Puerto Rico from its beginnings to the present. The blending of Indian, African, Spanish, and Anglo-American traditions into a uniquely Puerto Rican culture.

HI 470 **3 cr. 4 hr.**
Film as History
An analysis of the issues raised in the use of film as historical evidence. Journalistic and historical accounts of events are compared and contrasted with film treatments, particularly feature films and documentaries.

HI 480 **3 cr. 3 hr.**
Black America
An investigation of the historical development of the black man in the United States from his West African origins to the present. Emphasis will be placed on the role the black played in the economic, political and social life of the United States.
Prerequisite: HI 210 or 220 or permission of Instructor.

Open to students majoring or specializing in history with the permission of the supervising instructor and the department. Meeting times and credit by arrangement.

HI 488 **3 cr. 3 hr.**
Special Methods in Teaching of History
Special techniques for the teaching of history and their relationship to the principles of general methods.
Prerequisite: ED 301. Offered each year in the fall semester.

HI 490
Independent Study in History

Human Services

Coordinator
Cynthia Tower

Professors
Donald M. Isaac
David C. Maloney

Assoc. Professor
Richard J. Spencer

Asst. Professors
Mary King
Cynthia Tower

The Human Service program at Fitchburg State College is an interdisciplinary major administered by the Department of Behavioral Sciences in cooperation with the departments and areas of Special Education, Nursing, Business Administration, Environmental Science, Geography, History, Philosophy, Economics, Biology, Physical Education, Vocational Education, Education, Career Education, Modern Languages, English, Computer Sciences, Communication Media, Speech, and Political Science. This interdisciplinary approach allows students to develop the broad background necessary in working with people in need of help. The student will obtain a B.S. in Human Services preparing him/her for work in a variety of settings in the helping professions at entry level positions and/or for graduate study.

Aims and Objectives

The Human Services Program is competency based, with the College providing the theoretical and conceptual bases as well as facilitating the development of generic helping skills. Students will further develop and

demonstrate their knowledge and skills within a community.
Students will get the training they need so they will be able to fulfill career goals and to compete successfully in the job market. The community is served through trained personnel who meet demands for increased social services in our society.
Among the special characteristics of Fitchburg State's program, in addition to the interdisciplinary approach, is the coordination of supervised work experiences with academic studies. This experience involves working in agency settings under professional supervision in conjunction with human service course work taken at Fitchburg State College. This gives students experience which should strengthen their position when applying for jobs; it gives them a more realistic basis for choosing a career, and it gives potential employers an opportunity to screen students based on job performance. Students are also encouraged, throughout their stay at Fitchburg State College, to gain experiences through volunteer activities.

Liability insurance will be required of all Human Services majors and of all students taking a Human Service course which involves a practicum experience. (Effective January 1984)

Admission and Retention Policy

A student may enter the Human Services Major by either declaring it as a major upon admission to the college or as internal transfer (transferring into the Human Services major from another major within this college). A student who has declared Human Services as a major upon admission (as a freshman or as an external transfer) will be subject to retention review by the Human Services Curriculum Committee following the completion of Introduction to Human Services. Retention will be based upon both academic performance and suitability for the field (as determined by the majority of the Human Services curriculum committee). Entrance into the major as an internal transfer necessitates a 2.5 cumulative grade point average, successful completion of Introduction to Human Services, and determined suitability for the Human Services field.

Program Structure

There are three components to the major:

A. The Human Service Core (these courses are required for all majors)
HS 110
Introduction to Human Services
PY 335
Abnormal Psychology
HS 475
Interviewing Techniques
HS 476
Methods of Case Recording and Analysis (Case Methods)
HS 487 488 or 489
Field Work

There are two Field Work options: (1) a Block Placement, for 12 credits, involving 30 hours week in an agency for one semester (fall or spring); or (2) a two-day a week placement (15 hours) for two semesters (6 credits each) beginning in the fall and continuing until the end of the spring semester. Since some agencies only accept one or the other option for placements, it is essential for a student to plan well in advance in order to know if placement will begin in the fall or spring, as well as, completing all prerequisites to Field Work at least one semester prior to placement.

Admission into the Human Service Program does not guarantee entry into Field Work. Eligibility for Field Work will be based upon the successful completion of the following requirements:

1. Pre-registration for Field Work;

2. Completion of application for Field Work;

3. Maintaining a cumulative quality point average of 2.5 in prerequisite courses;

4. Demonstrated effectiveness in written and oral communication skills;

5. Positive recommendations by a majority of the faculty members in the

Human Service major;

6. No incomplete grades in any courses, no probationary status, and no unresolved failure in the candidate's major field of study;

7. All transfer students must take 12 semester hours within the department prior to field work;

8. Successful preplacement interview with the Field Work Placement Supervisor;

9. Successful preplacement interview with the Agency Supervisor;

10. Submission of a completed Acceptance Agreement which is agreed upon and signed by the Field Work Placement Supervisor, the Agency Supervisor, and the candidate; and

11. Submission of a completed Student Agency Field Work contract which is agreed upon and signed by the Field Work Placement Supervisor, the Agency Supervisor, and the candidate.

B. Human Services Behavioral Sciences Area
Students must take twelve credits in Psychology, Sociology and/or Human Services. These courses must be relevant to career goals and must be approved by a student's advisor and notation to that effect must be placed in the student's folder.

C. Related Courses
Students must take twelve credits in courses in departments other than Behavioral Sciences. These courses must be relevant to career goals and Field Work plans. This requirement may be fulfilled by taking courses in one or more departments, e.g. Business Administration, Computer Sciences, Special Education, Political Science, Economics, English, Biology, Philosophy, Physical Education, Speech, etc. These courses must be approved by a student's advisor. Notation to that effect must be placed in the student's folder.

Voluntary Experiences

It is to the student's advantage to gain experiences in agencies beyond those required in courses. The Volunteer Action Center may help in finding settings. Wherever students work, they should obtain letters of recommendation for their placement folders. This will aid students in course work at Fitchburg State College and also when applying for employment or graduate school.

Policy Concerning Human Service Major and Advisor Meetings:
There is a departmental policy concerning meetings called for majors and meetings with a student's academic advisor. The policy is that failure to attend departmental meetings called for Behavioral Science majors and/or failure to contact advisors may be grounds for a student's name to be dropped from the roster of those listed in the major.

HS 110 3 cr. 3 hr.
Introduction to Human Services
Principal goals for the course are to introduce the student to the scope and nature of human service agencies, their intervention models, and their professional staff. Particular focus will be made on the underlying philosophies, issues, and dynamics in social agency functions. Guest lectures from agency representatives, class simulations, agency critiques, and a required volunteer experience represent the priority activities in the course.
This course is a prerequisite to all Human Services courses.

HS 115 3 cr. 3 hr.
Community Resources
This course will acquaint students with the services of a variety of public (federal, state, and local) and private voluntary nonprofit agencies which provide services for various populations (topics to vary by semester). Students will learn what services are provided, how to obtain services, how to make referral to these agencies and how the agencies are operated (including staffing, funding and administrative aspects of the agencies). This course may emphasize special types of agencies in different semesters.
Prerequisite: HS 110.

HS 220 **3 cr. 3 hr.**
Delivery of Human Service Systems

This course will deal with social agencies, how they establish their goals, priorities, programs; how they are governed, staffed and financed; and how each of these relate to the needs of the people in the area served. Content may differ according to the delivery system being addressed.
Prerequisite: HS 110.

HS 230 **3 cr. 3 hr.**
Introduction to Rehabilitation Counseling
An overview of the vocational rehabilitation process in the U.S., including its history and governing federal legislation. Emphasis on the medical, psychological, sociocultural, and vocational factors in rehabilitation of handicapped individuals. This course will focus on the role of the Rehabilitation Counselor as a professional in the rehabilitation process.
Prerequisite: HS 110.

HS 240 **3 cr. 3 hr.**
Crisis Intervention
This course focuses on the concepts and techniques of Crisis Intervention. Many individuals are faced with such crisis situations as job loss, unwanted pregnancy, divorce, operations, death and dying. Specialized short-term techniques have been developed to help people in these situations. Students will also be required to spend approximately 4 additional hours per week in a crisis center for supervised experiences. The Crisis Center may ask students for a commitment beyond the semester.
Prerequisites: HS 110, PY 335.

HS 242 **3 cr. 3 hr.**
Juvenile Justice
A course designed to develop student awareness of past and contemporary philosophies, practices, and paradoxes of juvenile justice. The course will examine the programmatic efforts designed for juveniles "in trouble with the law" and will focus on the relationships between the components of this system of justice. The content of the course will be supplemented by current journal research and lectures by practicing professionals.
Prerequisite: HS 110.

HS 350 **3 cr. 3 hr.**
Introduction to Social Work
Social Work is one of the central professions in the Human Services. This course will deal with the history, concepts, basic issues and techniques of social work including casework, group work and community organization activities. Advanced study and career opportunities will also be explored.
Prerequisites: HS 110, SO 110.

HS 351 **3 cr. 3 hr.**
Social Casework
This course will explore casework concepts and techniques as utilized in a variety of settings, e.g. family agencies, mental health settings, hospitals, courts. The focus will be on the casework process with individuals, couples and families.
Prerequisites: HS 110, HS 350, PY 335.

HS 352 **3 cr. 3 hr.**
Social Group Work
This course will focus on social group work as a method in social work; the relationships of social group work to other social work methods and to group therapies. These techniques are used in clinical settings, recreational settings and community organizations.
Prerequisites: HS 110, HS 350.

HS 353 **3 cr. 3 hr.**
Community Organization
This course will focus on methods used in organizing citizen action groups to bring about change. Principles, methods and techniques of organizing, goal formulation, group maintenance, community planning and strategies will be studied.
Prerequisites: HS 110, HS 350.

HS 354
The Abuse and Neglect of Children
This course will present an overview of concepts vital to understanding and working with the abusive and neglectful parent: including differentiation

between abuse and neglect, reporting responsibilities, legal aspects, prognosis, prediction and the role of the community. Case studies will be used to enhance student understanding.
Prerequisites: HS 110, PY 110 and PY 220.

HS 360 3 cr. 3 hr.
Human Services Administration
The study of Human Services Administration is an exploration of administrative functions and their relationship to organizational effectiveness and efficiency. The internal and external politics of agency survival are addressed, and the theoretical concepts of underlying management and leadership styles are explored.
Prerequisite: HS 110.

HS 374 3 cr. 3 hr.
Probation
This course focuses on the correctional philosophy of probation by developing an understanding of its historical and legal evolution, its essence, and its administration in varied court systems. The responsibilities of probation professionals are explored in light of the roles of the probation officer, the community's expectations, case management, and community-interventions. Contemporary issues and the criminal justice system are discussed in relationship to their affects on this community-based treatment.
Prerequisite: HS 110.

HS 475 3 cr. 3 hr.
Interviewing Techniques
Skill in interviewing is essential to the development of professional competence in the helping professions. This course is designed to help the student learn about the problems and processes of interviewing while developing basic skills needed to become an effective interviewer. The course will include assigned readings, class discussions, taped interviews, demonstrations, practice sessions in class.
Prerequisites: HS 110, PY 335 and permission of Instructor. Students must preregister in the semester prior to the course.

HS 476 4 cr. 5 hr.
Methods of Case Reporting and Analysis
This course attempts to expose students to the technical and practical skills involved in the process of preparing, recording, presenting, and analyzing individual case reports. Case report applications, as they relate to schools, clinics, social service agencies, the courts, and other human service agencies will be integrated during the course. A supervised practicum in an approved agency setting (3 hr wk minimum) is required.
Prerequisites: HS 110, PY 335, HS 475 and permission of Instructor. Students must preregister in the semester prior to the course.

HS 487-488, 489 6 cr. 15 hr.
Field Work in 12 cr. 30 hr.
Human Services
The purpose of this course is to allow the student to demonstrate effective Human Service practices in the field. Further the course enables the student to obtain supervised experience working in a Human Services Facility (mental health clinic, hospital, family agency, social agency, welfare, nursing home, probation office, crisis center, recreation center, school counseling office, industry, etc.). These experiences will enable students to apply what they have learned in class, to understand the workings of agencies, and to explore career possibilities in the helping services. Students will work in an agency under the supervision of an agency staff member. In addition to the field experience, there are class meetings to share field experiences. There are two types of placements:

HS 487-488: students will work in an agency 15 hours per week throughout the school year, beginning in September. 6 credits each semester. HS 489: a block placement of 30 hours per week for one semester, either Fall or Spring. 12 credits, one semester.

HS 490
Independent Study
Independent Study is offered to outstanding students of Junior or Senior standing and requires approval of the professor and of the Chairman of the Behavioral Sciences department. Independent Study may take the form of special advanced reading programs or problem identification and research. Under no circumstances will independent study be substituted for regularly scheduled courses.

Students must have completed their prerequisites at least 1 semester before taking Field Work and must pre-register with the instructor in the beginning of the semester prior to the semester before they plan to enter an agency, i.e, students planning a Fall placement must have completed their prerequisites by the end of the previous Fall semester and pre-register with the instructor early in the previous Spring. Students must have had previous volunteer experience prior to enrolling in Field Work.
Prerequisites: HS 110, PY 335, HS 475, HS 476, prior volunteer experience and permission of Instructor.

Industrial Technology

Chairman
Phillip Tardanico

Professor
George B. James

Assoc. Professors
Howard Besnia
Stanley Bucholc
Erling Hanson
Robert Kokernak
Edward Martens
Philip Tardanico,
Jack Wescott

Asst. Professors
James Andrews
Abdollah Ataie
Joseph Farias
Lloyd Harte
Frederick Miller
Edson Phelps
Paul Trummel

Instructor
Steven Therrien

The Industrial Technology Program offers an opportunity for students to pursue three professional career options after completing a brief common core of experiences.

The three career options are:

Industrial Arts Major (Option I). This program prepares students for a teaching career.

Industrial Science Major-Business and Industry (Option II).

Industrial Science Major-Electrical Mechanical (Option III).

Students who plan to pursue a career as a technologist in the Electrical Mechanical option must declare themselves to this specialization during their freshman year. All other students in the department elect their major (Industrial Arts-teaching or Industrial Science-Business Industry) during their sophomore year.

The common core consists of (IT 101) Evolution of Industrial Technology and (IT 201) Man Technology and Society. These courses are designed to make students aware of the role of cultural aspects of technology in our society. In addition, four required lab courses are taken which introduce students to the major technical endeavors of mankind in the areas of (IT 111) Transformation, (IT 121) Communications, (IT 131) Materials and (IT 141) Energy.

Regardless of the major area chosen there are some tools and equipment requirements to be supplied by the student.

Industrial Arts Major

Students are required to complete 67 credit hours in their major which includes 12 credit hours in the common core. A total of 127 credit hours are required for a Bachelor of Science degree in Education (Industrial Arts).

During the Freshman year, students are required to take a technical mathematics

course. By the end of the freshman year, Industrial Arts majors must complete three credit hours in each of the following technical areas: Transformation (wood and metal); Energy (electrical and mechanical); Materials and Communications (drawing and graphic arts). In addition, three credit hours each of applied chemistry and physics are also required during the sophomore year.

Six basic shop or lab courses are required in the sophomore year. They are Wood Fab Systems, Metal Fab Systems, Technical Drawing, Graphic Arts, Electrical Systems and Circuits and Auto Technology.

During the Junior year, students determine their goals related to one area of specialization. To achieve these goals, they work with faculty advisors in selecting courses. The students are required to take at least 15 credit hours of technical electives to achieve their goals.

During the junior year, students may enroll in the professional sequence (IT 480, IT 481, IT 482) NOTE: IT 480 Methods of Teaching Industrial Arts is to be taken before IT 482 Curriculum Development in Industrial Arts or during the same semester.

The Industrial Arts major will student teach during the first or second semester of his/her senior year. During the student teaching semester the student will enroll in IT 483 Student Teaching (10 credits) and IT 485 Pre-Practicum Seminar (3 credits).

To enroll, students must have a 2.5 index for all Industrial Technology courses and have successfully completed a First Aid course. Students must have taken PY 110 and PY 223. A positive recommendation of the Industrial Technology Department is also required.

Industrial Science Major: Business and Industry

Students who wish to pursue the Industrial Science degree in order to work in the field of business and industry as technologists are required to complete 66 credit hours in their major which includes 12 credit hours in the common core. A total of 126 credit hours are required for the Bachelor of Science degree in Industrial Science.

During the Freshman year, students are required to take a technical mathematics course. By the end of the Sophomore year, Industrial Science: Technology majors must have taken IT 202, IT 205, IT 211, IT 212, IT 222 and IT 241. In addition, three credit hours each of applied chemistry and physics are also required during their sophomore year.

During the Junior year, students determine their goals related to one area of specialization. To achieve these goals, they work with faculty advisors in selecting modular and semester courses.

Depending on the interests and needs of each student and with approval from their faculty advisor, nine credit hours of professional courses will be selected. These nine credit hours constitute an individualized professional sequence in order to prepare the students for their business industry experience. The nine credit hours may be selected from the following: BA 220, 230, 320, 321, 420. During the Senior year, students may take a 12 credit Industrial experience and complete the 15 credit hours in their selected area of specialization. PY 110 and an economics course approved by the major advisor are also required for graduation.

Industrial Science Major: Electrical Mechanical

Students are required to complete 66 credit hours in their major which includes 12 credit hours in the common core. A total of 126 hours are required for the Bachelor of Science degree in Industrial Science. Prior to the Sophomore year, Industrial Science students should either take IT 151 or demonstrate a proficiency in Algebra, Trigonometry, vectors and some analytic geometry. In the Sophomore year students take IT 251, IT 254, IT 202, IT 253, and IT 356. In addition, students take eight credit hours of physics and three credit hours of computer programming. During the

Junior year, students take IT 252, IT 351, and IT 353, and nine credit hours of technical electives. Also four credit hours of chemistry are taken. During the Senior year, students may work in industry as technologists and receive 12 credit hours or may take a sequence of technical courses approved by the work experience committee. PY 110, and an economics course approved by the major advisor are also required for graduation.

IT 101 **3 cr. 3 hr.**
Evolution of Industrial Technology
Study of the history of industrial technology, and the qualifications, duties, and responsibilities of related careers. A field based prepracticum experience is an integral part of this course. This experience may be in a school or industrial setting.

IT 111 **3 cr. 4 hr.**
Transformation
Introduction to the various aspects (design, industrial process, fabrication) of transforming raw materials to useful products.

IT 121 **3 cr. 4 hr.**
Communications
Introductory experiences in communications through the design and production of massmedia messages, with emphasis on the technology of communications.

IT 131 **3 cr. 4 hr.**
Materials
An overview of selected materials and their properties including laboratory experiences designed to give students an understanding of research with materials.

IT 141 **3 cr. 4 hr.**
Energy
An overview of energy technology dealing with its technical aspects.

IT 151 **3 cr. 3 hr.**
Technical Analysis I
Development of computational skills used in solving problems involving polynomials, equations, trigonometry and vectors in the technical areas of mechanics, electronics, and fluid dynamics.

IT 200 **3 cr. 3 hr.**
Computers in Industrial Technology
This course will familiarize students with computers through presentation of selected hardware and software concepts. Extensive programming practice will be provided.

IT 201 **3 cr. 3 hr.**
Man Technology Society
Study of universal characteristics of technology, including effects of technology on society and culture. Topics of interest are researched.

IT 202 **3 cr. 4 hr.**
Technical Drawing
This course will include lettering, dimensioning, orthographic projection, symbols, sectioning, isometric, and auxiliary views. Problem development and blueprint reading will be stressed.

***IT 204** **2 cr. 4 hr.**
Copper Enameling
Students experience techniques of firing enamels (including lamps and threads) on copper. Processes studied are sgraffito, trailing, and stenciling.

IT 205 **3 cr. 4 hr.**
Electrical Systems and Circuits
Methods of producing, transmitting, controlling, and utilizing electricity. Emphasis on applications to energy and communications.
Prerequisite: IT 141.

IT 211 **3 cr. 4 hr.**
Wood Fabrication Systems, Procedures and Techniques
Furniture is designed, constructed and finished. Advanced fabrication concepts and techniques are studied.
Prerequisite: IT 111.

IT 212 **3 cr. 4 hr.**
Metal Fabrication Systems, Procedures and Techniques
Study of mass-production theory,

systems, and procedures in metal.
Prerequisite: IT 111.

IT 213 **3 cr. 4 hr.**
Plastics Technology
An investigation of the rapidly expanding area of plastics, how they are produced, their merits and limitations. Tests are conducted to confirm reference data and to promote a better understanding of various plastics and products made from them.
Prerequisite: Some background in Chemistry essential.

***IT 214** **3 cr. 4 hr.**
Ceramics
Course includes throwing on the wheel and glazing techniques, with strong emphasis on different sculptural forms. (Credit will not be given for both AR 214 and IT 214.)

IT 222 **3 cr. 4 hr.**
Graphic Arts Processes
Production and evaluation of messages utilizing graphic arts processes. This includes phototypesetting, camera work, stripping, plate making and offset press operations.
Prerequisite: IT 121 or permission of Instructor.

***IT 225** **3 cr. 4 hr.**
Calligraphy
A brief historic introduction to the arts of the Merovingian and Carolingian Miniscules that preceded the modern hand lettering of today. The art of the broad nib pen and wide brush will be emphasized. Students develop a series of plaques, signs and charts.

IT 228 **3 cr. 4 hr.**
Architectural Drawing
Students design a practical residential structure, conforming to standard practices and building codes. Technical skills are developed enabling students to communicate ideas. Topics include materials of construction, history and development of various styles, orientation of house on lot, loads, and design of structural members. Field trips and available films are used.
Prerequisite: IT 202.

IT 231 **3 cr. 4 hr.**
Service Requirements of Materials
A study of the problems concerning the environmental effects on the properties and behavior of materials and the procedures which can be employed to minimize those environmental influences.
Prerequisite: IT 131.

IT 232 **3 cr. 4 hr.**
Development of Industrial Materials
A study of procedures for converting raw materials into semi-finished products with consideration of properties developed as results of processing.
Prerequisite: IT 131.

IT 241 **3 cr. 4 hr.**
Automotive Technology
An introduction to multi cylinder gasoline engines; systems include ignition, fuel, brake, drive line and valve train.
Prerequisite: IT 141.

IT 243 **3 cr. 4 hr.**
Pneumatic and Hydraulic Energy Systems (Fluid Dynamics)
Flow phenomena of compressible and incompressible fluids are studied, including fluid statics and dynamics, boundary layers, conduit fluid flow, dynamic drag and lift.
Prerequisite: IT 141 and IT 151 or a Technical Mathematics course.

IT 244 **3 cr. 4 hr.**
Alternate Energy Sources
The study of solar and other forms of energy to supply household needs. Students build and test both commercial and laboratory made devices.
Prerequisites: IT 241 or permission of Instructor.

IT 251 **3 cr. 3 hr.**
Technical Analysis II
Continuation of IT 151 Technical Analysis I. Topics covered are logarithmic and exponential equations, complex numbers, statistical analysis, and an introduction to the derivative. Applications in the

areas of experimental data reduction, vibration analysis, motion of a particle, and practical optimization problems are stressed.
Prerequisites: IT 151 or permission of Instructor.

IT 252 **3 cr. 4 hr.**
Introduction to Experimentation
Emphasis is on the accumulation and evaluation of experimental data. Topics include literature surveys, project organization and management, types and uses of instrumentation, instrument accuracy, statistical analysis of data, design of experiments, and reportwriting techniques.
Prerequistie: IT 251.

IT 253 **3 cr. 4 hr.**
Circuit Theory
Principles of electric circuits and their applications to analysis and synthesis of linear circuits and characteristics of simple electric machines.
Prerequisites: IT 151; PH 270 may be taken concurrently.

IT 254 **3 cr. 3 hr.**
Statics
Study of laws of static equilibrium of real bodies. Includes beam and structural analysis, friction, centroids, and moments of inertia.
Prerequisite: IT 251.

IT 300 **3 cr. 3 hr.**
Production Planning and Control
Theory and practice in the essentials necessary for the operation of a manufacturing or service facility are the main thrust of this course. Layout of production, line operations, analysis of time requirements and related work resulting in an economical and efficient operation are included as part of the student lab experiences.

IT 311 **3 cr. 4 hr.**
Designing and Planning Transformation Conversions
Elements of product design are experienced through problem solving. Drafting, human engineering and product analysis are incorporated in design and construction of prototypes.
Prerequisite: IT 111.

***IT 312** **3 cr. 4 hr.**
Wood Technology
A course in which students investigate defects which occur in wood and how these affect the grading of lumber. The process of drying lumber, and its effects on the material are stressed. The processing of various wood products is included.

IT 316 **3 cr. 4 hr.**
Heat Treatment of Metals
This course covers the study of ferrous and non-ferrous metals commonly subjected to heat treatment to modify their physical properties. Hardening, tempering, annealing, and surface treatments are studied.

IT 317 **3 cr. 4 hr.**
Machine Processes
The design and fabrication of metal products utilizing machine tools, metalworking processes and welding.
Prerequisites: IT 111, IT 212.

***IT 318** **3 cr. 4 hr.**
Jig and Fixture Design and Construction
Instruction in the principles of jig and fixture design are covered. The students construct simple jigs and fixtures for various applications.
Prerequisites: IT 111, IT 212.

(See IT 313, IT 314, IT 333, and IT 315 in the materials area for possible electives related to transformation.)

IT 319 **3 cr. 4 hr.**
Advanced Metal Fabrication Systems
Specialized processes in the metal working industry will be studied. Laboratory experiences will include performing operations with tool cutter grinders, indexing heads, numerical control millers, turret lathes, and tracer lathes.
Prerequistes: IT 111, IT 212. Students who have taken IT 410 are not eligible.

***IT 320** **3 cr. 4 hr.**
Production Printing
Emphasis is on scheduling and production of contracted jobs. The course is designed to allow serious students to apply their previous instruction in a controlled, industrial type setting. Enrollment is limited to ten students.
Prerequisites: IT 326 and permission of Instructor.

***IT 321** **1 cr. 4 hr.**
Process Color Separation
Students experience the direct screening process obtaining four separation negatives with masks. The negatives are printed by means of a color key.
Prerequisite: IT 326.

IT 322 **3 cr. 4 hr.**
Engineering Drawing
This course includes orthographic projection, intersections, developments, revolutions, axonometrics, assembly details, and pictorial drawings.
Prerequisite: IT 202.

IT 323 **3 cr. 4 hr.**
Descriptive Geometry
Descriptive geometry is concerned with graphical representation and the solution of problems using spacial relationship of points, lines, and planes by means of projections.
Prerequisite: IT 202.

***IT 324** **3 cr. 4 hr.**
Illustration
An intensive, advanced course in allusive and expressive typography oriented towards students who aspire to a career in graphic and typographic design, type design, or art direction. Organized for reciprocity of subject matter in all illustrative context, the instruments and methods of the new technologies are studied, and the interdependence of design and reproduction are addressed through practical application.
Prerequisites: IT 202 and IT222, basic drawing board skills, an understanding of printing industry practices, and permission of the Instructor.

IT 326 **3 cr. 4 hr.**
Offset Lithography
The students study the lithographic form of printing as it is used in modern industry. The majority of the course is spent in the darkroom and setting up and running offset presses. Concepts include line copy, halftone, special effects, diffusion transfer and density. Roles students will pursue are designer, photographer, flat-stripper, platemaker, press operator, and binder.
Prerequisite: IT 222.

***IT 338** **3 cr. 4 hr.**
Physical Metallurgy
A study of metals, their properties and how they can be modified. Equilibrium and phase diagrams are introduced as needed. A variety of laboratory experiences are provided.
Prerequisite: permission of Instructor.

IT 340 **3 cr. 3 hr.**
Manufacturing
Theory as well as practical work is emphasized in this course. Lab work includes the use of a variety of inspection and measuring tools pertinent to quality control in a manufacturing operation. Procedures used to determine product assurance, reliability and testing are studied.

IT 341 **3 cr. 4 hr.**
Advanced Alternate Energy Sources
Course is limited to students who have demonstrated the ability and desire to continue the research and development of a solar energy system that showed promise in IT 244.
Prerequisites: IT 244 or permission of Instructor.

***IT 345** **3 cr. 4 hr.**
Internal-Combustion and Diesel Engines
The students test, modify, and retest an engine. Diesel theory, injectors, and pumps are included.
Prerequisites: IT 241 or permission of Instructor.

IT 351 **3 cr. 4 hr.**
Engineering Experimentation I
Activities required of technicians in industry are simulated. Students construct and assemble laboratory apparatus and perform tests on that apparatus.
Prerequisites: IT 251, IT 252, IT 253, PH 270.

IT 352 **3 cr. 4 hr.**
Engineering Experimentation II
Continuation of IT 351, Engineering Experimentation I.
Prerequisite: IT 351.

IT 353 **3 cr. 4 hr.**
Materials Technology
Topics include atomic bonding, atomic arrangements, structural imperfections, electronic structures and processes, phases and reaction rates and stability of materials in service environments.
Prerequisites: IT 251, PH 270, CH 100 taken concurrently or permission of the Instructor.

IT 354 **3 cr. 4 hr.**
Strength of Materials
An introduction to the behavior of real materials under the influence of forces and couples. Axial, shear, torsional and flexural stresses and strains are determined.
Prerequisites: IT 151, IT 254.

IT 355 **3 cr. 4 hr.**
Digital Electronics
An introduction to techniques of analyzing and synthesizing digital processors. Emphasis in design work is on IC technology.

IT 356 **3 cr. 4 hr.**
Electronics
Introduction to electronic circuits. Students learn to synthesize simple circuits and to utilize them as components of more complex systems.
Prerequisite: IT 253.

***IT 402** **3 cr. 4 hr.**
Drawing Graphics
A course designed to provide students with depth in drafting field and provide areas not normally covered in a Drafting Program. The student should have a good understanding of the drafting field prior to taking this course. The areas to be covered are (a) Boat Lofting (b) Topographic Drawing (c) Graphs and Charts.
Prerequisite: IT 202.

***IT 404** **3 cr. 4 hr.**
Advanced Design
Experimental design projects using the two and three dimensional approaches. The design of communication forms will make use of the five senses.
Prerequisites: IT 221, IT 222.

IT 406 **3 cr. 4 hr.**
Problems of Mechanical Maintenance
A course designed to investigate problems encountered in the maintenance of mechanical equipment. Topics covered are lubrication, bearing installation, replacement of parts, safety, and color dynamics.

IT 407 **3 cr. 4 hr.**
Safety and First Aid
Introduction to the latest occupational safety and health standards and to provide opportunity for the student to perform practical inspections, complete reports, and recommended corrective measures to ensure safe and healthful conditions. Basic First Aid instruction is included.

***IT 408** **3 cr. 4 hr.**
Industrial Arts for Special Education
Fundamentals of planning and constructing teaching aids and projects are stressed. Knowledge of tools, machines, and processes is covered.

IT 410 **3 cr. 4 hr.**
Numerical Control
Introduction and laboratory experiences are designed to provide students with the basic knowledge and techniques of programming and operations of the tape-controlled milling machine.
Prerequisite: IT 212.

IT 411 **3 cr. 4 hr.**
Production Furniture Fabrication
Emphasis on the production of a piece of furniture employing the development and use of jigs, fixtures and other suitable mass production procedures. Appropriate methods of production management are employed.
Prerequisite: IT 111, IT 211.

IT 412 **3 cr. 4 hr.**
Robotics I
This course will provide an opportunity to learn the fundamentals of industrial robotics. Basic theory and practice will be stressed. Topics that will be studied and experienced will include AS and DC motors, industrial robot programming, terminology and robotic classifications.

IT 413 **3 cr. 4 hr.**
Robotics II
This course is designed to provide students with the more sophisticated aspects of robotics such as: Voice synthesis, robot sensors, circuitry, system design and industrial robot classification. The student will learn application, problem solving and trouble shooting techniques on an industrial oriented laboratory robot.

IT 416 **3 cr. 4 hr.**
Welding and Casting
Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of welding, cutting, and braizing using oxyactylene welding equipment. Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of AC and DC welding and inert gas welding. Students acquire basic knowledge and application of casting techniques used in the non-ferrous casting industry. Field trips to casting industries are included in the course.
Prerequisites: IT 111, IT 212.

IT 418 **3 cr. 4 hr.**
Structures
A study of the construction industry with emphasis on residential construction methods, practices and procedures. A study of tools, equipment, and techniques used to construct a free standing structure as well as research in architectural problems related to residential construction.
Prerequisites: IT 111, IT 211, IT 212, IT311.

IT 424 **3 cr. 4 hr.**
Screen Printing
Students work with both hand-cut stencils and photo-direct emulsions. Emphasis is on multiple color registration and half-toning, using both hand and machine printing techniques.
Prerequisite: IT 222 or permission of Instructor.

***IT 425** **3 cr. 4 hr.**
Crayonstone Lithography
Students grind and prepare their stones, develop and transfer their illustrations to the stones, draw and shade on the stones and print their illustrations. (Credit will not be given for both AR 425 and IT 425.)

IT 451
Electronics II
This course continues the study of discrete devices such as FET's, UJT's and SCR's using the techniques developed in Electronics IT 356. Linear integrated circuits will also be covered.

IT 452 **3 cr. 4 hr.**
Research Industrial Materials
The students are required to select a material and conduct an in-depth study. Class reports are required. Individual initiative and efficient use of time are stressed.
Prerequisite: permission of Instructor.

***IT 453** **3 cr. 4 hr.**
Thermal Technology
The laws of thermal energy and heat transfer are studied, including specific heats, thermal conductivities, gas and steam cycles, conduction, convection and radiation.
Prerequisite: IT 251.

***IT 454** **3 cr. 4 hr.**
Control Theory
Introduction to control theory utilizing examples of mechanical, fluidic, electronic and hybrid control systems. Emphasis is on design utilizing the project approach.
Prerequisites: IT 256, IT 356.

***IT 455** **3 cr. 3 hr.**
Design of Machine Elements
Introduction to design principles and failure modes for various mechanical components. Includes static and fluctuating loads for brittle and ductile materials, fatigue stress concentrations.
Prerequisites: IT 322, IT 354.

***IT 456** **3 cr. 4 hr.**
Industrial Electronics
Study of applications of electronic principles in devices and equipment involving thermoelectronics, photoelectrics, electromagnetics, solid-state, welding and motor control, etc.
Prerequisite: permission of Instructor.

IT 471 **3 cr. 4 hr.**
Electronic Communications Systems
The system and circuits utilized in electronic communications will be studied including both transmitters and receivers. Methods of modulation will be discussed. Television will be utilized as a representative system.

IT 480 **3 cr. 3 hr.**
Methods of Teaching Industrial Arts
This course is designed to provide the prospective industrial arts teacher with a series of related academic, observational and participating experiences based on the fundamental elements of the teaching-learning process. Students will develop, implement and evaluate a variety of short-range instructional methods.

IT 481 **3 cr. 3 hr.**
Evaluation and Lab Management
During this course the student will be presented learning experiences relating to management tasks and ancillary activities. Students will also receive information regarding student evaluation.

IT 482 **3 cr. 4 hr.**
Curriculum Development in Industrial Arts
During this course the student will be presented experiences which relate to the development of a course of study. Students will also have the opportunity to analyze and develop strategies pertaining to curriculum development. Students also experience a pre-practicum in a public school industrial arts program.

IT 483 **10 cr. 30 hr.**
Practicum in Industrial Arts
Experience in planning and implementing instructional strategies in a public-school setting. Requirements include self-evaluation.

IT 485 **3 cr. 3 hr.**
Pre-practicum and Seminar
Opportunity to formulate concepts of industrial arts education and develop a working knowledge of principles and practices of industrial arts administration. Pre-practicum experiences are also included.

***IT 486** **3 cr. 15 hr.**
Professional Study and/or Field Study
Independent study in methods of teaching industrial arts and or curriculum development.
Prerequisite: Approved contract detailing study and activities.

IT 487 **12 cr. 36 hr.**
Directed Industrial Science Experience
Students participate in an industrial experience with the approval of the Industrial Technology faculty.

IT 490 **3 cr.**
Directed Study
Students may enroll in a Directed Study experience for 1 s.h. or 2 s.h. (IT 491 or IT 492) with the approval of the professor and Department Chairmen. If the study warrants 3 s.h., 4 s.h., 5 s.h. or 6 s.h. (IT 493, IT 494, IT 495, or IT 496), the Undergraduate Dean's approval must also be obtained.

Mathematics

Chairman
Barry Light

Assoc. Professors
Lucy Dechéne
Gerald Higdon

Asst. Professors
Robert Bentley
Richard Bisk
Robert Clark
Nicholas Copoulos
Ernest Fandreyer
Donald Freeburg
Claire McAndrew
Sonja Sandberg

Instructor
Soudabeh Vaghar

The Bachelor of Science and the Bachelor of Arts in Mathematics must include Calculus I, II, III, and IV, Linear Algebra, Abstract Algebra and at least fifteen additional semester hours of advanced mathematics (300 or 400 level), at least nine of which must be at the 400 level. One course in Computer Science is required at the level of CS 150 or higher. Graduate courses may be substituted for 400 level courses. The Bachelor of Arts degree requires foreign language proficiency at the second year level.

The Bachelor of Science in Education, Secondary, in Mathematics must include Calculus I, II, III, and IV, Linear Algebra, Geometry, Probability and Statistics I, Abstract Algebra and at least six additional semester hours of advanced mathematics courses at 300 or 400 level. Graduate courses may be substituted for 400 level mathematics courses. One course in Computer Science is required at the level of CS 150 or higher.

This major must also include Successful Practices in Secondary Education, Teaching Writing to Secondary Students, General Psychology, Adolescent Psychology, Tests and Measurements, Methods and Materials in Secondary Mathematics and Student Teaching in Mathematics.

A minor in mathematics contains 21 semester hours of which 12 semester hours are taken in Calculus I, II, and III and either Abstract or Linear Algebra. The additional three elective courses may be chosen from Introduction to Mathematical Thought or any mathematics course at the 300 or 400 level. At least one of the three electives must be at the 400 level.

MA 010
Basic Mathematics I
A review of basic arithmetic skills and an introduction to elementary algebra.

MA 020
Basic Mathematics II
A continuation of Basic Mathematics I. Concepts studied are from Elementary Algebra through quadratic equations.

MA 100 **3 cr. 3 hr.**
Introduction to Mathematics
An elementary course intended to acquaint the student with the nature of mathematical activity such as inductive and deductive reasoning, and problem solving.

MA 110 **3 cr. 3 hr.**
Introduction to Statistics
Elementary concepts of probability and statistics with applications are studied to provide an awareness of the scope and uses of statistics in the world. (Credit will not be awarded for both MA 110 and MA 170.)

MA 115 **3 cr. 3 hr.**
Technical Mathematics
A study of elementary topics used in solving technical and industrial problems. This course is intended for students in the Industrial Technology Department.

MA 120 **3 cr. 3 hr.**
Finite Mathematics
A variety of discrete mathematical models are developed and applied to business and to the social and life sciences. Topics include matrices, linear programming, probability and game theory.

MA 130 **3 cr. 3 hr.**
Functions
This course prepares students for the study of calculus. Topics include the real numbers, equations and inequalities, analytic geometry, and polynominal, trigonometric, exponential, and logarithmic functions.

MA 150 **3 cr. 3 hr.**
Introduction to Mathematical Thought
Intended to introduce mathematics as the science of reasoning. Topics include elementary set theory, logic, techniques of proof, basic properties of the real number system, mathematical induction, and axiomatic systems.

MA 170 **3 cr. 3 hr.**
Applied Statistics I
Methods of data collection, organization and interpretation, sampling, probability, estimation, and testing are applied to areas including biology, business, medicine, economics, and education. (Credit will not be awarded for both MA 110 and MA 170.)

MA 200 **3 cr. 3 hr.**
Informal Geometry
An intuitive study of basic geometric objects and concepts. Topics studied vary but are chosen for their intuitive appeal as well as their geometric significance.

***MA 210** **3 cr. 3 hr.**
Analytic Geometry
A study of geometry of the plane and three dimensional space emphasizing the interaction of algebraic and geometric concepts.

MA 220 **3 cr. 3 hr.**
Calculus for Business
A survey of those portions of one and several variable calculus most applicable to problems in business, the social sciences and biology.
Prerequisite: MA 130 or its equivalent.

MA 230 **3 cr. 3 hr.**
Calculus I
The derivative of a function, methods of differentiation and applications are studied.

MA 240 **3 cr. 3 hr.**
Calculus II
The Riemann Integral, methods of integration, and applications are studied.

MA 260
Linear Algebra
Topics include vector spaces, linear transformations and matrices with applications.

MA 270 **3 cr. 3 hr.**
Applied Statistics II
A continuation of MA 170. Topics include estimation and testing, simple linear and multiple regression, analysis of variance, nonparametric methods, time series analysis, and index numbers.

MA 281 **3 cr. 3 hr.**
Methods and Materials in Secondary Mathematics
Curriculum and pedagogy of secondary school mathematics are studied. The course includes a practicum of preprofessional experiences.

MA 283 **3 cr. 3 hr.**
Methods and Materials in Elementary Mathematics (Math Concepts)
Topics from arithmetic, algebra, and geometry of modern elementary school mathematics programs are studied. Attention is given to the structural and discovery approach.

MA 300 **3 cr. 3 hr.**
Geometry I
A formal study of basic concepts in geometry and the foundations of Euclidean geometry. This course is

for mathematics majors and students with a mathematics specialization; all others need permission from the instructor.

MA 310 **3 cr. 3 hr.**
Discrete Algebraic Structures
A study of discrete algebraic structures of interest in computer science. Topics include partial orders, Boolean Algebra, graph theory and finite state machines.

MA 315 **3 cr. 3 hr.**
Elementary Number Theory
Properties of the integers are studied. Topics include divisibility, prime numbers, congruences, Diophantine equations and mathematical induction.

MA 320 **3 cr. 3 hr.**
History of Mathematics
The development of mathematical ideas and methods from ancient to modern times and their relevance to other fields of knowledge will be studied.

MA 325 **3 cr. 3 hr.**
Probability and Statistics I
A careful development of elementary probability theory with applications is followed by the study of discrete and continuous random variables including the binomial, poisson, and normal.
Prerequisite: MA 240.

MA 330, 340 **3 cr. 3 hr.**
Calculus III and IV
Topics studied include sequences, series, polar coordinates, partial differentiation, multiple integration, vector-valued functions and vector analysis.

MA 350 **3 cr. 3 hr.**
Abstract Algebra I
A study of algebraic structures including groups, rings, and fields.
Prerequisite: MA 150 or consent of Instructor.

MA 360 **3 cr. 3 hr.**
Introduction to Mathematical Logic
An elementary introduction to classical and symbolic logic, including standard sentential and first order predicate calculi.

***MA 400** **3 cr. 3 hr.**
Geometry II
Projective geometry and other topics will be studied.

***MA 405** **3 cr. 3 hr.**
Topology
Topics include point sets, metric spaces, topological spaces, connectedness and compactness.

MA 410 **3 cr. 3 hr.**
Ordinary Differential Equations
Linear first and second order differential equations, methods of solution and applications are studied. Series solutions and higher order linear equations are considered.

MA 415 **3 cr. 3 hr.**
Advanced Multivariate Calculus
The differential and integral calculus of vectorvalued functions and functions of several variables.

MA 420 **3 cr. 3 hr.**
Real Variable Theory
A rigorous treatment of the foundations of differential and integral calculus with such topics as the real numbers, continuity, metric, and Euclidean spaces.

MA 425 **3 cr. 3 hr.**
Probability and Statistics II
Random variables and their probability distributions are used to study problems in estimation, hypothesis testing, regression and analysis of variance.

***MA 430-460** **3 cr. 3 hr.**
Topics in Mathematics
Seminar. Topics from advanced mathematics will be chosen from:

430 Abstract Algebra
432 Operations Research
434 Combinatorics
436 Complex Analysis
438 Differential Equations
440 Geometry
442 Logic
444 Number Theory
446 Numerical Analysis
448 Probability

450 Real Analysis
452 Set Theory
454 Statistics
456 Topology
Prerequisite: Permission of the instructor.

MA 490
Independent Study
Prerequisite: Permission of department.

MA 498 **6 cr. 6 hr.**
Student Teaching in Mathematics
Student Teaching Practicum in Mathematics. Students are assigned to cooperating schools for a semester of student teaching.

Medical Technology

Coordinator
Rose Marie Neunherz

Students in the Medical Technology program receive the Bachelor of Science degree. The program consists of three years on the Fitchburg State College Campus developing the necessary skills in basic sciences, chemistry, mathematics, and physics. To complete the baccalaureate degree, Medical Technology students must complete a practicum at an affiliated hospital. In order to be admitted to the junior year in the Medical Technology program, a student must have a cumulative average of 3.0 in math, biology and chemistry courses. The College cannot guarantee the placement of any candidate in an affiliated hospital.

All students in the B.S. in Medical Technology program are required to take the following courses:

Biology

BI 240 Human Biology
BI 280 Genetics
BI 410 Biochemistry
BI 440 Microbiology
BI 481 Immunology

Chemistry

CH 110, 120
General Chemistry I and II
CH 200, 210
or
CH 240, 250
Organic Chemistry I and II
CH 300
Quantitative Analysis

Physics

PH 110, 120
Introductory Physics I and II

Medical Technology

MT 100
Introduction to Medical Technology
MT 200, 210
Professional Issues in Clinical Laboratory Science I and II

MT 400
Clinical Hematology
MT 420
Clinical Chemistry
MT 440
Clinical Microbiology
MT 460
Immunohematology

Two courses in mathematics are required at or above the level of MA 130. MA 170, Statistics, is recommended.

MT 100 **2 cr. 3 hr.**
Introduction to Medical Technology
An integrated lecture-laboratory course designed to acquaint the student with the role of the medical technologist in the clinical laboratory, the duties of technologists, employment opportunities and educational requirements for the profession. Laboratory work includes

introduction to techniques in hematology, clinical chemistry, immunohematology and clinical microbiology. 2 hrs. lecture lab per week plus additional hours for independent project.

MT 200 210 1 cr. 1 hr.
Professional Issues in Clinical Laboratory Science
Expansion of introductory principles of medical technology. Economic, political and social issues pertinent to health care delivery. Professional and personal ethics. Interpersonal communication and interview techniques. Career options for medical technologist, and basic education and management strategies. Lecture, discussion, seminars and workshops.
Prerequisite: MT 100.

MT 400 8 cr. 10 hr.
Clinical Hematology
Comprehensive study of principles, procedures, special techniques and disease states in hematology. Laboratory experience includes theory and practice of blood cell enumeration and identification of normal and abnormal stained blood smears. Ca. 10 hrs. lecture lab per week during each semester of hospital internship year.
Prerequisites: 90 college credits, including 19 cr. biology and 20 cr. chemistry.

MT 420 8 cr. 10 hr.
Clinical Chemistry
Principles and techniques currently employed in clinical laboratories; preparation of solutions and care of equipment. Diagnostic tests are performed on all body fluids utilizing both manual and the latest instrumental techniques. Theory of the chemical manifestations of disease and the interpretation of data are stressed. Ca. 10 hrs. lecture lab per week during each semester of hospital internship year.
Prerequisites: 90 college credits, including 19 cr. biology and 20 cr. chemistry.

MT 440 8 cr. 10 hr.
Clinical Microbiology
A course designed to prepare the student for the isolation, identification and propagation of pathogenic organisms. Bacteria and their clinical significance to man are emphasized, but pathogenic fungi, protozoa and viruses are also considered. Ca. 10 hrs. lecture lab per week during each semester of hospital internship year.
Prerequisites: 90 college credits, including 19 cr. biology and 20 cr. chemistry.

MT 460 8 cr. 10 hr.
Immunohematology
Basic theory and laboratory techniques in blood banking and serology; common blood types, screening and preparation of donors, crossmatching, antigen-antibody reactions, and serological procedures: Ca. 10 hrs. lecture lab per week during each semester of hospital internship year.
Prerequisites: 90 college credits, including 19 cr. biology and 20 cr. chemistry.

Military Science

Professor
LTC Roger F.X. Carney

Asst. Professors
MAJ. Frank B. Markham
MAJ. Bruce Corning
MAJ. Brian Sullivan
MAJ. Joseph J. Javorski
CPT. William Allen
CPT. Francois R. Labrecque
CPT. Robert Visnovsky

Army Reserve Officer Training (ROTC) is offered by Fitchburg State College and is available to all male and female students. Physically qualified American

citizens who complete the program will be commissioned in the United States Army. Postgraduate Army service will be satisfied by a brief three to six month period on active duty for training only followed by participation in an Army reserve component or three years active duty as a leader and manager. Delayed entry on active service for the purpose of graduate schooling is routinely granted. Military Science is designed to complement other instruction offered by Fitchburg State. Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army.

The Military Science Department offers several concurrent programs designed to complement the Fitchburg State Plan. There are three variations of ROTC available to the student who desires to participate:

1. The traditional 4-year program during which the student would take MS courses during the academic year and attend one advanced summer camp between the third and fourth years.

2. The 2-year program designed especially for transfer students from non-ROTC schools. In this case, qualified students attend a basic summer camp prior to their third year and then continue through their last two years as any other 4-year program student.

3. The third variation consists of a compressed program for students who feel they can complete their academic studies in three years. The recommended compression is to take both the first and second year military science subjects in one year but other arrangements can be made. The courses themselves are those of the 4-year program.

Enrollment in ROTC produces no military obligation for the first two years. Students entering the Advanced Course (usually at the start of the third year) may incur a three-year active-duty commitment as an officer in the U.S. Army, with the remaining 3 years in the inactive reserve, or a 6-year commitment in the Army National Guard or Army Active Reserve.

Simultaneous Membership Programs

SMP offers the student the opportunity to be a member of the Massachusetts National Guard of United States Army Reserve and ROTC at the same time. Students will train as officers in their National Guard/USAR units during

National Guard/USAR unit training. See the Financial Assistance section of the catalog for further information on the financial aspects of the Simultaneous Membership Program.

Basic Course

The Basic Course includes the military science subjects taught during the first and second years. It introduces the student to the Army and the Army to the student. Since all effective leaders must understand the organization in which they will function, initial instruction is intended to create a working knowledge of the Army. Subsequent instruction deals with the study of military management. Basic Course offers FSC students the opportunity to learn about the U.S. Army and how it fits into society. The Basic Course is open to any FSC student with no military obligation.

Advanced Course

The Advanced Course includes those subjects taught during the third and fourth years. The objective is to develop leaders; to give the cadet experience in organizing and then managing a project; to enable the cadet to take charge of any project and bring it to a successful conclusion. This acquired ability is useful in every human endeavor; it is essential to the military leader. In conjunction with the theoretical approach to leadership studied in class, students are required to apply their knowledge during Leadership Laboratory. The Advanced Course is open to all students who have completed satisfactorily two years in the basic course or the equivalent.

A student enrolled in the Advanced Course receives an allowance of $100 a month tax free from the date of enrollment. During the Advanced Summer Camp, however, pay is computed on a fixed rate as established by the Department of the Army. To enroll in the Advanced Course students must execute a contract stating they will continue the course of instruction for two years and accept the commission of second lieutenant in the United States Army upon graduation.

Leadership Laboratory

The purpose of Leadership Laboratory is to give each cadet the opportunity to apply practically the theory learned during formal class periods. The senior cadets conduct the laboratory period with under-classmen filling subordinate roles, their degree of responsibility dependent on how far they have advanced in ROTC.

The Military Science Department encourages its cadets to participate in athletics and to join other extra-curricular activities in order to practice leadership theories learned in Military Science. In the event of schedule conflicts, training periods selected from intersession courses or active participation in one of the ROTC extracurricular activities may be substituted for the required training with prior ROTC advisor approval.

MS 140 1 cr. 1 hr.
Introduction to Army ROTC
An introduction to the Army ROTC program. Its history, purpose, structure and method will be discussed. Leadership Management responsibilities of an officer are presented. Emphasis will be placed on ROTC and its relationship with the United States Army.

MS 150 1 cr. 1 hr.
Introduction to the United States Army
An overview of the role of the "Total Army" within the framework of the national defense establishment. The integrated roles of the Active Army and the Reserve Components are examined. Emphasis is placed on the duties and responsibilities of the officer serving in the combat arms, combat support and combat service support branches.

MS 200 2 cr. 2 hr.
Land Navigation Communications
Students learn the basic fundamentals necessary to navigate and communicate. In Land Navigation, students identify terrain features, find locations, determine directions and plan routes. Maps, protractors, compasses, terrain boards and audio-visual aids are utilized extensively. In the communications portion of this course, students learn radio-telephone procedures, and how to communicate. Principles and techniques derived from this course have application to many other studies.

MS 220 2 cr. 2 hr.
Emergency Field Medical Treatment
This course presents casualty evaluation, treatment and evacuation under emergency conditions. Injury prevention under different climatic conditions is stressed. Techniques of resuscitation are addressed as secondary topics.

MS 230 2 cr. 2 hr.
Beginning Tactics
Principles of leadership, organization and techniques of employment of small units in military operations are studied. Emphasis is placed on the managerial functions—planning, organizing, coordinating, directing and controlling throughout the course. Students learn to solve problems working against time and stress. Maps, terrain boards and audio-visual aids are extensively utilized to bring realistic situations into focus. The various fundamentals of planning, decision making, risk taking and supervision can be transferred to many other fields of study.

MS 310 2 cr. 2 hr.
Advanced Theory of Unit Operations
A continuing study of effective leadership in tactical operations, culminating the lessons learned during previous courses;

examination of the theory and dynamics of the military team and its effective employment as part of the combined arms concept.

MS 320 **2 cr. 2 hr.**
Effective Communication
An introduction to the military methods of instruction and basic teaching procedures. Effective speaking, listening, writing and military correspondence, and an emphasis on the interrelationship of staff and command assignments in the effective utilization of people and resources.

MS 410 **3 cr. 3 hr.**
Advanced Management Techniques
A study of the psychology of leadership based on an organizational model. Emphasis is placed on individual, group, transactional and organizational factors that both a leader and manager need to consider in order to be maximally effective. Concurrently through management simulation exercises, the student will be exposed to and practice the basic elements of problem analysis, decision making, planning, organizing, delegation, control and interpersonal skills. As a result of this experience, the student is provided with the essentials for forming a creative, personal management and leadership philosophy that is capable of early practical application in a real-world setting. All course materials will be provided. This course is primarily for upper classmen.

MS 430 **3 cr. 3 hr.**
Law, Ethics and Preprofessional Seminar
This course provides the student with an introduction to Military Law and Military Professional Ethics. The role of the junior officer with regard to military law in the practical setting of his/her initial assignment in an Army unit is examined. This course provides the Advanced Course cadet with a basic knowledge of the Army's organizational practices and philosophy. The role of the non-commissioned officer is reviewed along with the basics of line and staff functions. An overview of the Army's personnel management, training, and logistics systems, along with post and installation support organization and functions are presented as a preparation for further study at the Post-Commissioning Branch Officer Basic Course.

Music

Professor
Harry Semerjian

Asst. Professors
Lillian Fagerholm
Frank Patterson

MU 100 **3 cr. 3 hr.**
Art Music I
Music as aesthetic experience. Representative styles and categories from the Middle Ages to the present. Students are required to attend professional concerts.

MU 200 **3 cr. 3 hr.**
Art of Music II
Music's reflection of the values and ideals of societies past and present. Interrelationships between the fine arts.

MU 220 **3 cr. 3 hr.**
Basic Music Theory
Rhythmic notation including meters and tempo. Melodic notation, including intervals, scales, and keys. Dynamics, an introduction to key relationship, transpositions, as well as other selected topics. No prerequisites.

***MU 230** **3 cr. 3 hr.**
Music Through the Compositional Approach
Students will encounter music through a series of creative projects in varied musical forms. Students must have ready use of a tape recorder and their own tapes. No prerequisites.

MU 310 **3 cr. 3 hr.**
Symphony
Structural and stylistic characteristics of the symphony from the 18th century to the present.

MU 320 **3 cr. 3 hr.**
Opera
Several works from the standard operatic repertoire. Some significant trends in modern opera.

***MU 330** **3 cr. 3 hr.**
Chamber Music
A survey of music written for small ensembles.

MU 340 **3 cr. 3 hr.**
Twentieth-Century Music
The idioms and aesthetic notions of the present century, together with their relationship to the past.

MU 350 **3 cr. 3 hr.**
American Music
American music from colonial times, with some emphasis upon "popular" and "Art" music of the present century in the U.S.

MU 360 **3 cr. 3 hr.**
Baroque and Classical Music
Monteverdi to Beethoven. Opera, oratorio, passion, cantata, sonata forms, dance forms, shifting aesthetic views.

MU 370 **3 cr. 3 hr.**
Romantic Music
The 19th century as reflected in its music.

MU 400 **1 cr. 2 hr.**
Choral Arts
Singing choral music past and present, including dramatic music. No more than 6 semester hours applicable toward graduation. Available for audit.
(See MU 410.)

MU 410 **1 cr. 2 hr.**
Instrumental Arts
Small and large ensemble playing of representative works for instruments including band and jazz ensemble literature. No more than 6 semester hours of MU 410 or any combination of MU 410 and MU 400 applicable toward graduation. Available for audit.

MU 420 **1 cr. 2 hr.**
Class Piano
Practical keyboard usages in classroom work: accompaniment, simple transposition, harmonizaion of melodies at the keyboard.

MU 430 **1 cr. 2 hr.**
Class Voice
Principles of voice production. Breath control, phrasing, resonance, and diction are stressed.

***MU 440** **3 cr. 3 hr.**
Song
Popular, folk, and art songs of many nations.

MU 450 **3 cr. 3 hr.**
Harmony I
Harmonizations of simple melodies. Principles of modulation and key relationships.

***MU 451** **3 cr. 3 hr.**
Harmony II
Further work in modulation. Chromaticism. Late 19th and early 20th century developments.
Prerequisite: MU 450 or equivalent.

***MU 470** **3 cr. 3 hr.**
Compositional Techniques
Working with small musical forms. Traditional devices like sequence, ostinato, motivic development. Freer forms.

***MU 471** **3 cr. 3 hr.**
Musical Production
Workshop approach to producing and rehearsing opera, operetta musical comedy.

MU 480 **3 cr. 4 hr.**
Music in Elementary Education
The objectives and techniques of teaching music in the first six grades.

MU 490
Independent Study in Music

Nursing

Chairman	*Professors*
Barbara Madden	Barbara Madden
	Margaret Taylor
Assoc. Professors	*Asst. Professors*
Lillian Bannon	Virginia Doyle
Rita Driscoll	Elizabeth Fisk
Sheila Fredette	Sophia Harrell
Phyllis Green	Won Hee Kim
Elizabeth May	Jane Minasian
Katharine O'Connor	Barbara May
	Tanya Ratney
	Carol Seavor
	Eileen Sjoberg
	Rowena Taylor
	Andrea Wallen
Instructors	*Part-Time Instructors*
Belinda Asano	Sandra Austin
Catherine Humphreys	Michelle Brady
	Gail Consolati
Linda McKay	Marie Jellinek
Carol Picard	Jean Kressy
Jeanne Rodier	Marianne MacLean
Richard Trifilo	Mildren Marion
	Judith Mizhir
	Barbara Powers
	Helen Rogers
	Elizabeth Shaw

Purpose

The purpose of the Fitchburg State Bachelor of Science Degree in Nursing is to prepare a practitioner of professional nursing who can assume responsibility for planning and providing health care to individuals, groups and communities in collaboration with other health professionals. To accomplish this purpose the degree program requires a balance of general education and nursing studies. The following are the requirements of the degree, a nursing curriculum plan, and a program for registered nurses who desire a baccalaureate degree.

Bachelor of Science in Nursing

(123 semester hours—63 semester hours in Nursing)

General Education (60 cr. minimum)	
English Composition I and II	3 cr. 3 hr.
Speech or General Ed. elective	3 cr.
State and Federal Const. Prof.	
Math Science	
	12-16
Anatomy and Physiology I and II	3 cr. 3 hr.
Chemistry I and II	3 cr. 3 hr.
Survey of Micro-organisms	3 cr.
Social Sciences	
	15
General Psychology	3 cr.
Introduction to Sociology	3 cr.
Human Growth and Development	3 cr.
Humanities	
	15
Electives (from Gen. Ed. Area)	
	6
Applied Statistics	3 cr.
Nursing*	*63 cr.*
The Nurse: Concept and Practice I and II	6 cr. 6 hr.
Scientific Foundations for Nursing Interventions	3 cr.
Nursing Intervention: Concept and Practice I and II	12 cr. 12 hr.
Nursing in Society: Concepts and Practice	10 cr.
Nursing: Selective Practicum	12 cr.
Contemporary Professional Issues	2 cr.

**Students are responsible for providing their own transportation for clinical practice.*

Note: Students are required to have a quality point ratio in nursing courses at the end of each semester equal to the cumulative quality point ratio required for overall course work in order to progress to the next nursing course. Any student on academic probation can not be admitted to NS 470 or NS 480. Note: Liability insurance coverage and health clearance is required for all clinical nursing courses.

Nursing Curriculum Plan
Freshman Year

Anatomy and Physiology	3
Chemistry I	3
**General Psychology	3
English Composition	3
Elective	3
	15
Anatomy and Physiology	3
Chemistry II	3
*Intro. to Sociology	3
English Composition II	3
Elective	3
	15

Sophomore Year

The Nurse: Concept and Practice I	6
*Human Growth and Development	3
*Applied Statistics	3
Elective	3
	15
The Nurse: Concept and Practice II	6
Scientific Foundations for Nursing Interventions	3
Survey of Microorganisms	3
Electives	6
	18

Junior Year

Nursing Intervention: Concept and Practice I	12
Electives	3
	15
Nursing Intervention: Concept and Practice II	12
**Speech or General Ed. elective	3
Elective	3
	18

Senior Year

Nursing in Society: Concepts and Practice	10
Contemporary Professional Issues	2
Elective	3
	15
Nursing: Selective Practicum	12
	12

**May be taken either semester.*
***May be taken any semester of any year.*

Bachelor of Science in Nursing for Registered Nurses

Applicants must meet the regular college requirements for admission which include the following: 1. Application filed by April 1; 2. Official transcripts from (a) High School (b) diploma or associate degree program and (c) colleges and universities attended.
In addition to the above requirements registered nurses must successfully complete two of the eight-credit nursing competency exams offered in place of the sophomore and Junior basic nursing courses. These examinations are developed by the faculty in the Department of Nursing and administered by the CLEP Program Director once each month. Examinations should be completed by May 1 for admission the following fall. However, seniors in diploma or associate degree programs may arrange for a later testing date with the consent of the nursing coordinator. Further information including application for the examinations, course outlines and bibliographies may be obtained from the Nursing Department. It is also recommended that an interview be arranged with the coordinator of the registered nurse program.

Program Plan for Registered Nurses

Must meet the General Education Distribution Requirements as established for the basic nursing curriculum. Registered nurses may receive credit for General Education through the CLEP Program and teacher made examinations. At the present time, teacher made examinations are offered for Anatomy

and Physiology, Human Growth and Development. Survey of Microorganisms and Scientific Foundations for Nursing Interventions. These exams are also offered through the office of the CLEP Program. The complete list of CLEP examinations through which students may earn credit is also available from that office.

Nursing Distribution
Nursing Competency Examinations, 24 semester hours; Scientific Foundations for Nursing Interventions, 3 semester hours; Concepts of Nursing I, 6 semester hours; Concepts of Nursing II, 6 semester hours; Contemporary Professional Issues, 2 semester hours; Nursing in Society: Concepts and Practices, 10 semester hours; and Nursing: Selective Practicum, 12 semester hours. Total required credits is 63.

In order to enter the senior year, students must have completed all nursing competency examinations, NS 350 and 360, Scientific Foundations for Nursing Interventions, Anatomy and Physiology I and II, Chemistry I and II, Survey of Microorganisms, General Psychology, Introduction to Sociology, Human Growth and Development, Applied Statistics, and English Composition I and II.

NS 270 **6 cr. 8 hr.**
The Nurse: Concept and Practice I
Theoretical and methodological concepts provide the framework for assisting the student to develop as a person and a learner. Concepts such as health, interpersonal skills, professionalism and nursing process are explored. Laboratory experiences are provided for the practice of affective and psychomotor skills.
Prerequisites: BI 120, BI 130, CH 130, CH 140, PY 110, SO 110, EN 100, EN 120.

NS 280 **6 cr. 8 hr.**
The Nurse: Concept and Practice II
This course assists the student in applying the theoretical foundations acquired in NS 270. An exploration of the nursing process continues, and concepts relating to the health promotion needs of the expectant family are also included. Students are expected to appropriately utilize the nursing process at a beginning level in clinical settings with clients in selected developmental phases which include the elderly and healthy pregnant women.
Prerequisite: NS 270.

NS 285 **3 cr. 3 hr.**
Scientific Foundations for Nursing Interventions
This course assists the student to understand basic alterations in physiology and principles of pharmacology underlying nursing assessment, diagnosis and intervention.
Prerequisites: BI 120, BI 130, CH 130, CH 140.

NS 300 **2 cr. 2 hr.**
Women and Health Care
This elective course will explore the past, present and future roles of women as health care consumers and providers. The impact of sexism and feminism on the delivery of health care will be examined. Current women's health care issues will be addressed, including unnecessary surgery, contraception, eating disorders, disability, etc. The analysis will also focus on women as health care workers with a special emphasis on nursing and the Women's Health Movement. Open to non-majors.

NS 310 **3 cr. 3 hr.**
Pharmacology: Personal and Professional Perspectives
This elective course deals with principles of pharmacology in their application to personal and professional situations. Although the focal point is drug classifications, prototypes are considered in terms of their principal effects. Students will have the opportunity to explore an area of interest in depth. Open to non-majors.
Prerequisites: BI 120, BI 130, CH 130, CH 140.

NS 320 **2 cr. 2 hr.**
Health Promotion in the Child From a Developmental Perspective
This elective course identifies major components of preventive health care from infancy through adolescence. Its focus is to utilize the nursing process to plan interventions for maintenance and promotion of health. Open to non-majors.
Prerequisite: PY 220.

NS 350 **6 cr. 9 hr.**
Concepts of Nursing I
Designed to provide the advanced placement student with a quality learning experience to broaden his/her perspective of professional nursing. Students are expected to demonstrate their expertise in the use of the nursing process by working with clients in a variety of health care settings.
Prerequisites: Two of the eight credit nursing competency examinations.

NS 360 **6 cr. 9 hr.**
Concepts of Nursing II
Through the process of critical thinking the concepts and theories of nursing and health are further developed and practiced with clients in settings chosen by the students. (Offered second semester only.)
Prerequisite: NS 350.

NS 370 **12 cr. 20 hr.**
Nursing Intervention: Concept and Practice I
The totality of humans as bio-psycho-social beings is emphasized. The frame of reference is the internal environment. Concepts directed toward stabilizing this environment as well as concepts and theories of nursing and health are discussed, broadened and increased in depth. Clinical experience in a variety of settings is an integral component of this course. Offered fall semester.
Prerequisites: NS 280, NS 285, PY 220, MA 170, BI 270.

NS 380 **12 cr. 20 hr.**
Nursing Intervention: Concept and Practice II
The student continues to explore concepts of the bio-psycho-social nature of humans. The concepts of health, nursing and environment will be further explored. Clinical experience in a variety of settings is an integral component of this course. Offered spring semester.
Prerequisite: NS 370.

NS 410 **2 cr. 2 hr.**
Holistic Health: Alternative Approaches to Health Care
Holistic Health explores the integration within the individual of the body, mind, spirit and environment. It utilizes the technically advanced aspects of modern medical science while recognizing the wisdom of valid alternatives to standard Western medicine. This elective course will discuss general approaches as well as specific modalities.
Prerequisite: NS 360 or NS 380.

NS 420 **2 cr. 2 hr.**
Contemporary Professional Issues
This course provides an opportunity for senior nursing students to identify, explore, and discuss some of the critical issues and trends affecting nursing today; including fights and responsibilities relative to professional organization and practice and opportunities for employment after graduation. This course is offered concurrently with NS 470.

NS 430 **2 cr. 4 hr.**
Promoting Mental Health in the Acute Psychiatric Setting
This elective course provides students the opportunity to apply knowledge of psychiatric-mental health nursing theory and principles in the acute in-patient setting.
Prerequisite: NS 370.

NS 440 **2 cr. 2 hr.**
Holistic Care of the Person with Cancer
This elective course is a synthesis of prior nursing theory within a paradigm of caring for the person with cancer. The nursing process will be utilized as the framework for examing psychological,

physiological and educational needs. Current concepts from research and literature in nursing and related sciences will be presented.
Prerequisite: NS 370.

NS 470 10 cr. 16 hr.
Nursing in Society: Concepts and Practice
General Systems Theory and the nursing process provide the framework of the course. Subsystems considered are group, family and community. An holistic approach is used to assess the interdependence between the clients' health and the environment. Nursing intervention is planned on the primary, secondary, and tertiary levels.
Prerequisites: NS 380 or NS 360 plus all previously noted prerequisites to NS 380.

NS 480 12 cr. 20 to 30 hr.
Nursing: Selective Practicum
This course provides students with the opportunity to explore in depth particular areas of interest. The purpose of the experience is to encourage the synthesis of all previous learnings, The concepts of critical thinking, leadership skills, communication skills, and research underlie the course of study. The student is required to select a variety of guided clinical experiences during the semester.
Prerequisites: NS 420 and NS 470.

Philosophy

Professors
James Colbert
Walter Jeffko
Richard DeCesare

Assoc. Professor
Richard Glidewell

PL 100 3 cr. 3 hr.
Introduction to Philosophy
An introduction to the problems, methods, and goals of classical and contemporary Western Philosophy. Emphasis is placed upon how these differ from and relate to other fields of human knowledge.

PL 300 3 cr. 3 hr.
Philosophy of Education
This course seeks to trade the origin and development of major educational theories and their contemporary implications.

PL 310 3 cr. 3 hr.
Logic
An introduction to logical thinking from the perspective of both traditional and modern logic. The following topics are covered: difference between deduction and induction, language and definition, fallacies, categorical propositions, categorical syllogisms, deductive arguments in ordinary language, and selected topics in symbolic logic.

***PL 320 3 cr. 3 hr.**
Theories of Knowledge
The problems and methods of human knowledge. Theories presented in the light of idealism, realism, pragmatism, and existentialism.
Prerequisite: PL 100.

***PL 330 3 cr. 3 hr.**
Metaphysics
Introduction to the origin and development of metaphysical problems in Western Philosophy.
Prerequisite: PL 100.

***PL 331 3 cr. 3 hr.**
Ancient Philosophy
A study of the beginnings of Western Philosophy, including the Pre-Socratics, Plato, Aristotle, and several other figures of the period.
Prerequisite: PL 100.

***PL 332 3 cr. 3 hr.**
Medieval Philosophy
Includes St. Augustine, Boethius, Albertus Magnus, Avicenna, Averroes, Maimonides, and St. Thomas, and their influence upon subsequent philosophy.
Prerequisite: PL 100.

PL 340 **3 cr. 3 hr.**
Philosophy of Man
An exploration of human nature or personhood from the triple perspectives of philosophy, religion, and behavioral science, focusing upon the following thinkers and movements: Plato, Christianity, early modern individualism, Marxism, Freud, existentialism, Frankl's logotherapy, Skinner, Fromm's humanism, and personalism.

PL 350 **3 cr. 3 hr.**
Contemporary Ethical Systems
Moral experience and reflective ethics; survey and critical evaluation of major ethical theories; ethics and science.

***PL 359** **3 cr. 3 hr.**
Modern Philosophy
Trends of modern thought since the Renaissance, including Descartes, Locke, Spinoza, Leibniz, Hume, Kant, and Hegel.
Prerequisite: PL 100.

PL 360 **3 cr. 3 hr.**
Contemporary Ethical Problems
Application of ethical thinking to some of today's major social and personal issues including crime and punishment, civil disobedience, prejudice and discrimination, sex, abortion, war, and suicide and death.

PL 361 **3 cr. 3 hr.**
Contemporary Philosophy
An examination of some current trends and issues in contemporary American, British, and European philosophy.
Prerequisite: PL 100.

***PL 400** **3 cr. 3 hr.**
Existentialism
Origin of contemporary existentialism; its leading ideas as seen in writings of such philosophers as Kierkegaard, Jaspers, Marcel, Sartre, and Camus.
Prerequisite: PL 100.

PL 410 **3 cr. 3 hr.**
Philosophy of Art
An examination of the interpretations of esthetic experience presented by such thinkers as Aristotle, Tolstoy, Shiller, Bergson, Spengler, and Dewey.
Prerequisite: PL 100.

PL 420 **3 cr. 3 hr.**
Political and Social Philosophy
The various political and social ideas beginning with Plato and continuing to Marx.
Prerequisite: PL 100.

PL 430 **3 cr. 3 hr.**
Philosophy of Science
An analysis of the methods and goals of the physical sciences, how they differ from the social sciences, and the philosophic problems encountered in scientific pursuits.

PL 440 **3 cr. 3 hr.**
Philosophy of Language
The role played by language in human knowledge and the increased emphasis on the analysis of language in recent philosophy.
Prerequisite: PL 100.

***PL 441** **3 cr. 3 hr.**
Plato
Plato's theory of idea, theory of knowledge, ethical and political views, doctrine of the fine arts.
Prerequisite: PL 100.

***PL 442** **3 cr. 3 hr.**
Aristotle
A study of Aristotle's philosophy as seen in his Metaphysics, Politics, and Nicomachaen ethics.
Prerequisite: PL 100.

***PL 443** **3 cr. 3 hr.**
Marxism
A study of Marx's thought, its origins, development, and contemporary applications.
Prerequisite: PL 100.

***PL 444** **3 cr. 3 hr.**
Early American Philosophy
A study of American thought from the Colonial Period through 19th century.

***PL 445** **3 cr. 3 hr.**
Contemporary American Philosophy
An examination of the current trends and issues in American thought.

PL 466 **3 cr. 3 hr.**
Man and Nature
A continuation of PL 465 covering the period from the trial of Galileo to the present, dealing with such topics as evolution, nuclear physics, the theory of relativity, and the human brain.

PL 468 **6 cr. 6 hr.**
Adventures in Ideas
A study of the major ideas of Western man and their influence on our lives and our thoughts. Each semester several basic modes of thought are studied and the class explores how each idea manifests itself in literature, science, philosophy, etc. Classes are combinations of lecture and group discussion with considerable emphasis placed on individual student exploration of these major ideas.

PL 489 **3 cr. 3 hr.**
Comparative Religious Experiences
This course studies the principal religions of mankind : Buddhism, Islamism, Judaism, and Christianity; their basis tenets and insights into spiritual values.

***PL 446** **3 cr. 3 hr.**
American Pragmatism
An analysis of the thought of Peirce, James, and Dewey.
Prerequisite: PL 100.

PL 447 **3 cr. 3 hr.**
Seminar Special Topics

PL 450 **3 cr. 3 hr.**
Philosophy of Love
An analysis of the concept "love" as employed in the social and moral philosophies of various classical and contemporary thinkers.
Prerequisite: PL 100.

***PL 460** **3 cr. 3 hr.**
Philosophy of Religion
The God-problem and religious experiences as seen in the classical philosophers and in the philosophies of existentialism and pragmatism.
Prerequisite: PL 100.

PL 465 **3 cr. 3 hr.**
Man and Nature I
This course is based, in part, on the **Ascent of Man** film series by Jacob Bronowski. It covers a broad range of topics centering on those discoveries, ideas, and events which have been crucial to the development of modern civilization. The origin of man, ancient civilizations, early mathematics and astronomy are among the topics covered.

Physical Education

Chairman
Thomas Battinelli

Professors
Thomas Battinelli
Lee N. Cunningham

Asst. Professors
Joyce Downey
Barbara Nole
James Sheehan
Caryl Sickul

Instructors
David Antaya

The Physical Education Minor

The Fitchburg State College Physical Education is designed to provide students with an opportunity to pursue:

1. Study in an alternative field of interest.

2. Prerequisite study for further graduate work.

Professional Course Requirements (12)

Exercise and Sport Science	(3)
Overview of Physical Education	(3)
Behavioral Concepts of Sport	(3)
Athletic Training and Conditioning	(3)

Physical Activity Course Requirements *(6)*

Elementary Secondary

Sports Concepts	(1)
Team Sports	(2)
Rhythmics	(1)

Individual and Dual Gymnastics	(1)
Activities	(2)
Outdoor Sports	
Outdoor Sports Activity	(1)
Activities	(2)
Individual and Dual Activities	(2)

Human Services majors may substitute Recreational Leadership and Camp Counseling as requirements.

PE 100 **3 cr. 3 hr.**
Health and Fitness
A basic survey of the effects of diet, exercise and selected environmental agents upon human, mental and physical health. Topics may include body build and body composition, fitness evaluation and programming, nutritional considerations, psychological correlates of health, chemical alternations, human sexuality, and personal and public health.

PE 200 **3 cr. 3 hr.**
Adaptations
The human organism is examined in terms of its adaptation to acute and chronic stress. Physiological responses to such stressors as exercise, heat, and dark, altitude and nutrition are studied theoretically and in a laboratory setting.

PE 201 **1 cr. 2 hr.**
Psychology of Sport
A basic overview of the psychological impacts of sport upon participants and spectators. The areas of winning and losing, competition behavior modification, women in sport, and the study and analyzation of emotional reaction profiles will be used in the observation of emotional behaviors.

PE 226 **3 cr. 3 hr.**
Officiating Basketball and Volleyball
The philosophy and techniques of officiating basketball and volleyball for women, DGWS rules are used for both sports, and an opportunity is presented to take the written and practical national examination to obtain a rating in either or both sports.

PE 300 **1 cr. 2 hr.**
The Cardiovascular System and Exercise
The preventitive aspects of endurance exercise and nutrition as related to the cardiovascular system will be studied in a lecture-laboratory format. Each student will be tested before and after a cardiovascular training program using a series of assessment techniques which will include an exercise ECG, estimated maximal oxygen consumption, blood pressure, lung function, muscular strength, flexibility and body composition.

PE 301 **1 cr. 2 hr.**
Introduction to Kinesiology
An overview of the study of the mechanics of human motion will be presented. This course is designed to integrate Kinesiological principles to the teaching of selected motor activities.

PE 302 **1 cr. 2 hr.**
Consumer Health
This course is designed to help the student evaluate health information critically, and select products and services wisely. The past, present, and future of quackery will be explored especially in the areas of food, cosmetics, and chronic disorders. Laws and protection agencies, governmental and private, will be surveyed.

PE 304 **1 cr. 2 hr.**
Diet, Exercise and Weight Control
The course is designed for those interested in weight loss or weight maintenance through the medium of diet and exercise. After an initial assessment of body composition, endurance fitness and the establishment of dietary goals, each student will work toward the normalization of body weight through actual programs of exercise and diet.

PE 305 **1 cr. 2 hr.**
Figure Control Through Weight Training
The theory of weight training and diet in relation to figure control will be discussed. Each student will have physique, body composition, aerobic

fitness and muscular strength evaluation before and after a weight training program.

PE 306 **1 cr. 2 hr.**
Weight Training for Athletes
Theory for the development of muscular strength for specific athletic activities. Anthropometric, body composition, and muscular strength evaluations will be undertaken prior to and following an individually developed weight training program.

PE 307 **1 cr. 2 hr.**
First Aid and Safety
A behaviorally oriented course structured for those responsible for the safety and protection of others. Official Red Cross certification will be issued upon satisfactory completion of course.

PE 308 **3 cr. 3 hr.**
Behavioral Concepts of Sport and Fitness
This course is designed to aid the student in understanding the psychological and sociological behaviors common to the realms of sport and fitness. Concepts of competition, cooperation, motivation, social stratification and interaction will be examined. Also, a variety of observational techniques will be used in the analyzation of behavioral reactions.

PE 309 **1 cr. 2 hr.**
Physical Education for the Orthopedically Handicapped
The course will include an overview of congenital, postural, and degenerative orthopedic problems. It is designed to aid the student plan suitable corrective exercises and activity programs for people with these special needs.

PE 310 **1 cr. 2 hr.**
Techniques of Road Racing
The purpose of the course is to acquaint the student with various topics of running long distance road races. Topics include the physiology of running, training strategies, injury care and prevention, nutritional aspects and methods of assessing running ability. Each student will undertake a training program, serve on a committee to organize a road race and participate in three road races.

PE 311 **1 cr. 2 hr.**
Sports Concepts
Physical activity skills for team sports will be viewed from the physiological and values perspective. Students will practice physical activity and value techniques.

PE 312 **1 cr. 2 hr.**
Controversies in Nutrition
This course is designed to study the nutritional issues prevalent today. The available evidence will be presented to explain, clarify, and summarize the positions taken by investigators in the field.

PE 380 **1 cr. 2 hr.**
Physical Education in the Elementary School
A theory and practice course designed to guide the classroom teacher in organizing a comprehensive program of physical education activities.

PE 400 **3 cr. 3 hr.**
Exercise and Sport Science
Basic exercise physiology is explored as it relates to the health professions. Theoretical topics include orientation to exercise, movement and energy production, neurological aspects of movement, and circulatory, respiratory, and hormonal factors in exercise. Practical topics include: cardiovascular stress testing, nutrition and weight control, physique aA body composition, fitness programming, the female in sports, the influence of activity on growth, evaluation of muscular strength, respiratory responses to exercise, and environmental effects such as altitude and temperature.

PE 401 **3 cr. 3 hr.**
Scientific Foundations of Athletic Training and Conditioning
A course designed to discuss the

principles of injury prevention and care, the physiology of training and nutritional considerations as they apply to athletics.

PE 402 **3 cr. 3 hr.**
Jogging: Theory and Practice
The scientific basis for cardiovascular training programs using jogging as the mode of activity will be presented. Prepost cardiovascular and body composition evaluations and individualized jogging programs will be designed.

***PE 404** **3 cr. 3 hr.**
Fundamentals of Coaching
An analysis of the principles and practices of coaching in various sports will be presented for the prospective teacher-coach.

PE 405 **3 cr. 3 hr.**
Recreational Leadership
The organization and administration of recreational activities will be presented in reference to the development of the principles and practices in both school and community programs. Leadership experience with school and community programs will also be offered.

***PE 406** **3 cr. 3 hr.**
Camp Counseling
Course content provides an opportunity to study some of the problems in the Field of Camping, to acquire skills essential in camp life and to develop leadership in individual and group work.

PE 407 **3 cr. 3 hr.**
Physical Education: An Overview
Designed to provide the student with an overview of the philosophic history, administrative patterns, current curriculum approaches, teaching and learning concepts, and innovative trends in physical education.

Activity courses are taught on a half-semester basis. Each half semester carries 2 clock hours and credit.

Basketball
Volleyball
Softball
Tennis
Advanced Tennis
Badminton
Karate
Judo
Gymnastics
Slimnastics
Rhythmics
Aerobics
Dance Aerobics
Folk Dance
Canoeing
Tumbling
Introduction to Mountain Hiking
Backpacking
Downhill Skiing
Cross Country Skiing
Modern Jazz I, II, III
Horseback Riding
Bicycle Touring
Contact Improvisation (Movement/Dance)
Creative Movement
Orienteering

PE 408 **3 cr. 3 hr.**
Body Build and Physical Performance
This course is designed for the study of body build in terms of size, shape, proportions and composition in relation to the physiological and/or psychological correlates of physical conditioning, motor ability, biomechanics, cardiovascular conditions and personality.

PE 409 **3 cr. 3 hr.**
Art of Dance (Humanities Credit)
This course offers students the opportunity to experience dance aesthetically and kinesthetically. Representative style forms from tribal dance through the Renaissance period to the present will be covered. Films, movement labs and concerts will also be included.

PE 410 **3 cr. 3 hr.**
Outdoor Education
This course is designed to explore the use of the outdoors as a medium in the educational process. Topics will include: introduction to outdoor education, teaching methodology, basic principles

of high adventure activities, school camping and outdoor education programs.

PE 411 **3 cr. 3 hr.**
Introduction to Dance Movement Therapy
The purpose of this course will be to study dance therapy through movement processes designed to further physical, emotional, and spiritual integration. Kinesthetic principles and practices will be explored through structured and improvised movement experiences. Effort-Shape Analysis and Chase-Movement Therapy techniques will be utilized to enable students to increase their movement ranges, discover their own movement preferences, and develop leadership skills.

Physics

Chairman Esmail Valanejad
Professor Esmail Valanejad
Assoc. Professor Norman Fredette
Asst. Professor Thomas Morrill

PH 101, 102, 103 and 104 are for non-science majors and are strongly recommended to students at large for satisfying their General Education requirements.

PH 110 and 120 are for biology, medical technology students.

PH 130, 140 are for computer science, chemistry, mathematics, industrial science majors.

PH 210, 220, 310, 320, 410, and 420 are all advanced courses that will be offered from time to time in the form of free electives to those students who have had PH 130 and 140 and have shown keen interest in Physics and Mathematics.

PH 101, 102 **3 cr. 4 hr.**
Physical Science I and II
For the non-scientist. Emphasis is upon the building of conceptual models, solving techniques, and the processes of science.

PH 103 **3 cr. 4 hr.**
Astronomy
A study of planetary motion, the sun, stars, and galaxies. An observing program. A background of algebra is assumed.

PH 104 **3 cr. 4 hr.**
Environmental Physical Science
The study of (1) the environment, (2) the effects of pollution on the environment, ecosystems, and natural balance and (3) relevent background material in physical science as needed. Prerequisite: Physical Science I, Earth, Sea and Air, or equivalent.

PH 110 **3 cr. 4 hr.**
Introductory Physics I
An introduction to an analytical study of Newtonian mechanics and the properties of matter. A working knowledge of algebra is assumed. Elements of trigonometry are considered in the course.

PH 120 **3 cr. 4 hr.**
Introductory Physics II
An introduction to an analytical study of wave motion, electricity and modern physics. A working knowledge of algebra and trigonometry is assumed.

PH 130 **4 cr. 5 hr.**
General Physics I
Mechanics: Straight line motion; circular motion; Kepler's law of planetary motion; universal gravitation; work; energy; power; conservation of energy and momentum; simple harmonic motion. Hydrostatics and hydrodynamics: Archimedes' principle, Bernouli's equation, viscosity, Stokes law, Reynolds number. Heat and thermodynamics: heat and heat measurements; transfer of heat; thermal properties of matter; the laws of thermodynamics; kinetic theory of gases.

PH 140 **4 cr. 5 hr.**
General Physics II
Electricity and Magnetism: Coulomb's

law, electric field, electric potential, capacitance, electric circuits, magnetic field, magnetic forces on a current-carrying conductor, magnetic field of a current, induced e.m.f., magnetic properties of matter. Geometrical Optics: Laws of reflection and refraction; mirrors; lenses; optical instruments; eye and its optical defects and their correction; illumination and color. Physical Optics: interference and diffraction; polarization.
Prerequisite: PH 130.

PH 210 **4 cr. 5 hr.**
General Physics III
Atomic and Nuclear Physics: Electronic configuration of the atoms; Bohr atom; atomic spectra; X-rays; radioactivity and radiation hazards.
Prerequisite: PH 140.

PH 220 **3 cr. 3 hr.**
Intermediate Mechanics
Calculus and delta methods are used in an analytical study of Newtonian mechanics with application to nonconservative forces, central forces, and rotational dynamics. Linear ocillator, free and forced oscillations, damping, vibrating string, traveling and standing waves.
Prerequisite: PH 130 or equivalent.

PH 270 **3 cr. 3 hr.**
Physics for Industrial Technology
This is a course in elementary Physics with particular emphasis on applications in the area of industrial technology. Topics include kinematics, statics, dynamics, work and energy, simple machines, fluid dynamics, and heat transfer.

PH 310 **3 cr. 3 hr.**
Quantum Mechanics
Inadequacies of classical physics, uncertainty principle, Schrodinger equation, physical interpretation of wave function, energy levels, harmonic oscillator, hydrogen atom, perturbation theory.
Prerequisites: PH 210 and MA 240.

PH 320 **3 cr. 3 hr.**
Electricity and Magnetism
After a preliminary introduction to vector algebra, electrostatic as well as magnetostatic fields in vacuum and material media are discussed. Maxwell's equations and propagation of electromagnetic waves are considered.

PH 410 **3 cr. 3 hr.**
Statistical Mechanics and Thermodynamics
Laws of thermodynamics, entropy, Carnot cycle, kinetic theory of gases, Bose and Fermi gases, low temperature physics.
Prerequisite: PH 310.

PH 420 **3 cr. 4 hr.**
Solid State Physics
Short review of quantum mechanics, crystal structure magnetism semiconductor theory, specific heat of solids.
Prerequisite: CS 250.

Political Science

Asst. Professor
Shirley Haslip

Courses in political science are intended for any student with a general interest in politics and government. They are also designed to provide a proper background for students interested in pursuing graduate study or a career in law, public administration, or government and political science. It is recommended that these students take six hours of Modern American Government and six hours of electives.

Modern American Government, PS 100 and PS 200 or the consent of the Instructor are required for all other courses in Political Science.

PS 100 **3 cr. 3 hr.**
Modern American Government: State and Urban Government
Focus upon current issues in urban and

state government and politics and attempts to evaluate proposed solutions.

PS 200 **3 cr. 3 hr.**
Modern American Government: The Federal Government
Growth and complexity of the functions performed by the branches of the national government: Congress; President; and Supreme Court. Examination of the crucial role of the President today in national and world affairs. Attention given to current political campaigns. N.B. PS 100 and 200 or the consent of the Instructor are required for all other courses in Political Science.

PS 210 **3 cr. 3 hr.**
Public Policy Analysis: Case Studies in American Politics
Covers four major divisions of public policy: health, education, labor, and welfare. The aim is to attain an understanding of how the American political system works through a study of the policy that has come out of that system.

PS 220 **3 cr. 3 hr.**
Constitutional Law and the Supreme Court
Treats the Constitution as a living document, tracing its development through historic Supreme Court decisions.

PS 250 **6 cr. 12 hr.**
Legal Internship
Internships are available in several regional law offices for those persons interested in para-legal work. These internships prepare students for positions in law offices, public administration, and other human service work. Credit is either 6 or 12 semester hours depending upon arrangements with the Social Sciences Department.

PS 300 **3 cr. 3 hr.**
International Law and Organization
A study of the pioneering political institutions which have been fashioned to cope with the issues of world interdependence.

PS 320 **3 cr. 3 hr.**
Contemporary International Relations
A study of critical problems confronting the present international system. The "Cold War," armed conflict, internal violence, as well as prospects for the resolution of conflict are explored.

PS 350 **3 cr. 3 hr.**
Political Systems of the Modern World
A comparative analysis of modern national governments such as the Soviet Union, France, Germany, and Great Britain. Importance of the world's political heritage and the implications for the emerging nations of liberal democracy, communism, and dictatorship.

PS 360 **3 cr. 3 hr.**
Civil Rights and Civil Liberties in the United States
Conceptual perspectives of civil rights and civil liberties, freedom of expression and the problem of loyalty and security, equality, the civil rights movement, criminal justice procedures, and the politics of civil rights and liberties.

PS 370 **3 cr. 3 hr.**
Introduction to the Legal Process
An introduction to the American legal system: how courts and lawyers function, how cases are decided, and the means by which courts interpret legislation. Open to any student, but recommended for those interested in the legal internship program.

PS 400 **3 cr. 3 hr.**
Principles of Administration
An introduction to administration is presented. Leadership, authority, change, and communications are among the topics discussed. The course includes case studies and problem-solving from such fields as allied health, business, law enforcement, and government service.

PS 489
Internships in Political Science
Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Open to students who have the permission of the department. Credit and hours by special arrangement.

PS 490 **3 cr.**
Independent Study in Political Science
Open to students who have the permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

Psychology

Coordinator
Anita Hotchkiss

Professors
Alan Bernstein
Harry Crowley
John Dufault
E. Arthur Garvin
Paul Girling
Mary Ann Hanley
Donald Isaac
Charles Streff

Assoc. Professors
G. Jefferson Breen
Carol Gay
Anita Hotchkiss
Mabel Sgan
Richard Spencer

Asst. Professors
Richard Kruse
Donna-Lee McCabe

Instructor
Peter Hogan

The degrees of Bachelor of Arts and Bachelor of Science in Psychology require thirty-seven semester hours of course work in Psychology.

Note: The Bachelor of Arts degree requires foreign language proficiency at the second year college level. The program is divided into two groups of courses with special requirements, integrative or pre-professional courses, and related electives.

GROUP I: All courses required

PY 110 General Psychology
PY 210 Psychological Statistics
PY 214 Intro. to Research Methods
PY 441 Experimental Psychology
PY 448 History and Systems in Psychology

GROUP II: At least one course required from each area.

Area 1: Developmental
PY 220 Human Growth and Development
PY 221 Child Psychology
PY 223 Adolescent Psychology
PY 224 Adult Development
PY 225 Psychology of Women
PY 226 Gerontology
PY 228 Psychology of Human Development
PY 232 Death and Dying

Area 2: Adaptive
PY 216 The Psychology of Speech and Communication
PY 230 Psychology of Personality
PY 240 Psychology of Captivity
PY 265 Social Psychology
PY 335 Abnormal Psychology
PY 355 Group Dynamics
PY 362 Adaptation and Growth in Work Environment
PY 373 Psycho-Social Problems of Urban Children

Area 3: Basic Processes
PY 342 Physiological Psychology
PY 343 Perception
PY 350 Psychology of Learning
PY 353 Motivation

Area 4: Applied Studies
PY 215 Introduction to Speech Pathology
PY 345 Psychological Testing
PY 361 Organizational Psychology
PY 363 Industrial Psychology: Human Factors
PY 364 Performance and Performance Development

PY 371 Learning Theory and Its Application
PY 377 Principles of Guidance

The remainder of the thirty-seven credits should be taken among the above areas or from the following integrative or pre-professional courses and from the related electives. An integrative or pre-professional course is recommended.

Integrative or Pre-Professional Courses
PY 422
Advanced Child Psychology
PY 480
General Psych. Teaching Practicum I
PY 482
Practicum in Developmental Psychology
PY 483
Practicum in Experimental Psychology
PY 487
Internship in Psychology
PY 489
Internship in Psychology
PY 400
Topics in Psychology

Related Electives

ED 211
Behavioral Science in Early Childhood I
ED 311
Behavioral Science in Early Childhood II
PY 275
Tests and Measurements

The Related Electives area would also include seminars, independent study, and other courses approved by the Psychology Curriculum Committee.

A Minor in Psychology

The minor in Psychology requires a minimum of 18 semester hours of course work in the area, beyond the course General Psychology.

The Psychology minor is designed to enable the student (a) to understand and evaluate psychological research and literature; (b) to choose courses which complement and relate to the major field of study; and (c) to explore a particular interest in psychology in some depth. Accordingly, the following course organization is required:

Group I
All courses required
PY 110
General Psychology (prerequisite; not counted towards minor)
PY 210
Psychological Statistics
PY 214
Introduction to Research Methods

Group II
At least one course is to be taken from EACH of any THREE of the four areas described under the major *(Adaptive, Applied, Basic Processes, and Developmental)*. The remaining required course may be selected from either the integrative courses or any one of the above mentioned areas.

PY 110 3 cr. 3 hr.
General Psychology
This course deals with the science of human behavior; Scientific method, maturation, motivation, emotions, sensation, learning, personality, and adjustment. This course is a prerequisite for all other courses in psychology.

PY 210 3 cr. 3 hr.
Psychological Statistics
This is an introduction to applied statistics, descriptive statistics, and basic inferential statistics up to and including analysis of variance.
Prerequisite: PY 110.

PY 214 3 cr. 3 hr.
Introduction to Research Methods
The emphasis in this course is on research design, including consideration of sampling procedures, questionnaire design, methods of observation and reporting.
Prerequisite: PY 110 and PY 210.

PY 215 3 cr. 3 hr.
Introduction to Speech Pathology
This course provides an orientation to speech pathology by identification and referral procedures for primary speech problems, examination and observation of speech therapy procedures. Clinical point of view is stressed.
Prerequisite: PY 110.

PY 216 **3 cr. 3 hr.**
The Psychology of Speech and Communication
This course provides information for judging speech behaviors of self and others. Concepts of speech, language and communication, healthy speaking and listening behaviors, non-verbal communication, animal communication, linguistic and psycholinguistic theory.
Prerequisite: PY 110.

PY 220 **3 cr. 3 hr.**
Human Growth and Development
This life-span course emphasizes a study of the physical, physiological, social, and psychological development of the individual from conception to old age.
Prerequisite: PY 110. (Cannot be used as credit toward the major.)

PY 221 **3 cr. 3 hr.**
Child Psychology
This course emphasizes theories and research in child development, and their application to the understanding and guidance of development in normal children.
Prerequisite: PY 110.

PY 223 **3 cr. 3 hr.**
Adolescent Psychology
Adolescence as a cultural phenomenon and as a stage of development is investigated, with the aim of understanding the impact of current theoretical emphasis and trends, physical and sexual development of emerging youth in their search for identity.
Prerequisite: PY 110.

PY 224 **3 cr. 3 hr.**
Adult Development
This course introduces the student to theories and research for the periods of young and middle adulthood. Physical, mental and personality processes are covered, as well as issues and problems of research in adult development. Application of this knowledge to adults in their relationships and in their work settings are stressed.
Prerequisite: PY 110.

PY 225 **3 cr. 3 hr.**
Psychology of Women
Objectives of this course involve an increased awareness of the psychological development of women and of the dimensions of self and personhood in relation to society; the examination and analysis of issues relative to current debate concerning the status of women.
Prerequisite: PY 110.

PY 226 **3 cr. 3 hr.**
Gerontology: the Psychology of Growing Old
This course introduces the student to psychological aspects of growing old in our society. Topics for investigation include intelligence and memory, personality differences, altered life styles, disengagement theory, reactions to stress and loss through death. Emphasis is on the normal aging process rather than the pathological.
Prerequisite: PY 110.

PY 228 **3 cr. 3 hr.**
Psychology of Human Sexuality
This course includes a study of the relationships among the various aspects of sexuality, including relationships, social norms, and cross-cultural variations in sexual behavior.
Prerequisite: PY 110.

PY 230 **3 cr. 3 hr.**
Psychology of Personality
Dynamic factors in personality formation are studied through some of the leading theoretical positions on personality development.
Prerequisite: PY 110.

PY 232 **3 cr. 3 hr.**
Psychology of Death and Dying
Through lectures, readings, discussions, and media, students explore psychological theory, research, and personal feelings concerning the dying process, suicide, grief, sudden death, and dying as it influences persons at different developmental stages.
Prerequisite: PY 110.

PY 240 **3 cr. 3 hr.**
Psychology of Captivity
This course deals with the effects of captivity on both the captive and the captor. Materials include films, tapes, interviews, first-person accounts, systematic studies of experiences, and the long-term consequences on persons involved and on their children.
Prerequisite: PY 110.

PY 265 **3 cr. 3 hr.**
Social Psychology
The emphasis in this course is on psychological constructs and concepts applied to the interaction between human beings. Topics to be covered include interpersonal communication, the formation of attitudes and group influences upon individual behavior.
Prerequisite: PY 110.

PY 275 **3 cr. 3 hr.**
Tests and Measurements
This is a study of the basic statistical concepts and techniques of measurement, with application to teacher-made tests and standardized tests used in education and psychology.
Prerequisite: PY 110.

PY 335 **3 cr. 3 hr.**
Abnormal Psychology
Normal, neurotic, and psychotic behavior and methods of psychotherapy are reviewed. Emphasized are techniques for maintaining optimal psychological health.
Prerequisite: PY 110.

PY 342 **3 cr. 3 hr.**
Physiological Psychology
This course examines the relationship between behavior and the structure and function of the organism's nervous system; emphasis on the physiological basis of learning, motivation, emotion, motor activity, and perception.
Prerequisite: PY 110.

PY 343 **3 cr. 3 hr.**
Perception
Principles related to a person's awareness of his world are studied. Topics to be considered are psychophysics, the relationship between motivation and perception, the sensory bases of perception and localization in space.
Prerequisite: PY 110.

PY 345 **3 cr. 3 hr.**
Psychological Testing
Laboratory course in the theory, administration, and interpretation of group and individual tests used in studying certain behavior characteristics.
Prerequisite: PY 110.

PY 350 **3 cr. 3 hr.**
Psychology of Learning
This course focuses on principles and theories of learning, classical conditioning, operant conditioning, verbal learning, acquisition of motor skills.
Prerequisite: PY 110.

PY 353 **3 cr. 3 hr.**
Motivation
Characteristics of motivated behavior, explanation of sources of motives, and application of theories to current research and interpersonal skills are studied in this course. Emphasis is on the biological, learned, and cognitive components of motivation. Topics include internal and external motives, the relationship of stress and motivation, the place of physiological processes in motivation, issues in motivation of others, motivation for aggressive/passive behaviors, and success/failure motivation.
Prerequisites: PY 110.

PY 355 **3 cr. 3 hr.**
Group Dynamics
The nature and dynamics of interpersonal relationships are revealed in typical group settings such as classrooms, workshop seminars, and other discussion-oriented groups. Emphasis is on both content and process as demonstrated in a laboratory learning environment.
Prerequisite: PY 110.

PY 357 **3 cr. 3 hr.**
Small Group Leadership
This course is designed to equip students

to plan and conduct meetings requiring the coordination of effort of small groups of people. Participants will study and practice basic leadership skills applicable to a variety of small group settings. They will develop and demonstrate these skills in the context of small group participation in class and as readers of extra-class groups.
Prerequisite: PY 110.

PY 361 **3 cr. 3 hr.**
Organizational Psychology
This course examines organizational influences on motivation and satisfaction of the workforce. Methods of surveying organizational climate are introduced, and a variety of intervention methods are evaluated. Organizational experience in Japan, Western Europe and the United States will be analyzed and compared.
Prerequisite: PY 110.

PY 362 **3 cr. 3 hr.**
Adaptation and Growth in Work Environment
This course assists students in foreseeing problems that might arise in the attempt to cope with work demands while satisfying individual needs. Students learn to adapt their interpersonal skills for effective communication; explore techniques for creative problem-solving; and are introduced to techniques of stress reduction and prevention. Other topics include adult socialization, status issues, and personal needs/motivation, and job satisfaction.
Prerequisite: PY 110.

PY 363 **3 cr. 3 hr.**
Industrial Psychology: Human Factors
Students develop the ability to fit the demands of people and work together. They study the "human factors" which affect design considerations. Competence is developed in tailoring work conditions and equipment to facilitate human performance and in identifying the skills required by the job.
Prerequisite: PY 110.

PY 364 **3 cr. 3 hr.**
Performance and Performance Development
The definition, measurement, and development of performance in complex work roles are analyzed. An essential ingredient of the course are participative workshops aimed at developing the skills of behavior observation, performance coaching, and training.
Prerequisite: PY 110.

PY 371 **3 cr. 3 hr.**
Learning Theory and Its Applications
This course focuses on the principles and theories of learning, as derived by both the laboratory psychologist and the educational researcher, as applied to various social settings: the classroom, the family, etc.
Prerequisite: PY 110.

***PY 373** **3 cr. 3 hr.**
Psycho-Social Problems of Urban Children
The experience of the inner-city child is studied in relation to housing, schools, and teachers; emergence of the "alternative school" and other attempts to help children. Students participate in a two-hour weekly seminar and work for at least five hours in the community.
Prerequisite: PY 110.

PY 377 **3 cr. 3 hr.**
Principles of Guidance
This is an introductory course for students interested in developing their skills in helping relationships in a one-to-one relationship and or in a group setting.
Prerequisite: PY 110.

PY 400 **3 cr. 3 hr.**
Topics in Psychology
These are seminars dealing with contemporary issues in psychology. Specific topics will vary from semester to semester, depending on the instructor.
Prerequisite: Variable-permission of Instructor.

PY 422 **3 cr. 3 hr.**
Advanced Child Psychology

This course provides an expansion and continuation of the major topics in child psychology. Opportunities for individual projects and experiences with children will be provided.
Prerequisite: PY 221.

PY 441 4 cr. 4 hr.
Experimental Psychology
This course is an analysis and study of the scientific method, experimental designs, and laboratory methods in behavioral science, emphasizing laboratory experiments and scientific communication of results.
Prerequisite: PY 210, 214, junior or senior standing in the major, permission of Instructor.

PY 448 3 cr. 3 hr.
History and Systems of Psychology
This advanced course provides a consideration of contemporary psychology as seen in its historical perspective. The development of psychological concepts and theories is traced from their antecedents in philosophy, theology, and the physical sciences.
Prerequisite: Junior or Senior standing, 15 credits in psychology. Taught fall semesters only.

PY 480 6 cr. 15 hr.
General Psychology Teaching Practicum
Assistantship in the teaching of General Psychology. By appointment by staff only.

PY 482 6 cr. 15 hr.
Practicum in Developmental Psychology
Experience in practical application of basic principles of human development. Students work with staff in areas of mutual interest. Preference given to students who have taken courses in the developmental area.
Prerequisite: permission of Instructor.

PY 483 6 cr. 15 hr.
Practicum in Experimental Psychology
Students perform advanced and applied work in experimental psychology. Students work with staff in areas of mutual interest.
Prerequisite: Permission of Instructor.

PY 487 or 488 6 cr. 15 hr.
Internship in Psychology
Through an internship the student experiences the relationship between courses in psychology and their applications in the field. Work is carried on in settings, approved by the department, and faculty member and an on-site supervisor. Internships are available in service agencies, business, and industry. Each intership would presuppose specific course background. Students are encouraged to discuss internship plans with their advisors early in their college experience. Interested students must contact the Psychology Curriculum Coordinator early in the fall semester of the year in which the internship is desired. Internships are offered only in the spring semester.
Prerequisite: 2.5 cumulative average and departmental approval.

PY 489 12 cr. 30 hr.
Internship in Psychology
Same description and prerequisites as for PY 487

PY 493 3 cr. 3 hr.
Independent Study
This experience is offered primarily to psychology students of Junior or Senior standing, and requires approval of the professor and of the Psychology Curriculum Committee. The student must petition the Psychology Curriculum Committee the semester prior to undertaking the independent study. Independent study may take the form of: special advanced reading programs; problem identification and research; assistantships; acquisition of professional skills. Under no circumstances will independent study be substituted for regularly scheduled courses. Independent study may be taken for from 1 to 6 semester hours.

Russian

Professor
John Burke

RU 100 **3 cr. 4 hr.**
Russian for Beginners I
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. Russian gradually becomes the working classroom and laboratory language.

RU 110 **3 cr. 4 hr.**
Russian for Beginners II

RU 200 **3 cr. 4 hr.**
Intermediate Russian I
Remedial pronunciation, grammar review, conversation, and laboratory practice. Readings stress U.S.S.R. life, customs, and culture. Russian is the working language.
Prerequisite: Two years of high school Russian or RU 110 and/or Instructor's permission.

RU 210 **3 cr. 4 hr.**
Intermediate Russian II
Continuation of RU 200.

RU 340 **3 cr. 3 hr.**
Dostoevsky and Tolstoy (In English)
An in depth comparative study of the two giants of Russian XIX century literature. Contrasts in biography themes and styles. Lectures and readings in English. Standard length paper. Midterm and final examinations.

RU 360 **3 cr. 3 hr.**
Russian Literature in English Translation
A seminar on a specific topic from Russian literature (eg. Soviet Literature, the modern Russian novel). Lectures and readings in English. Emphasis on significant works in Russian and Soviet literature. Midterm and final examinations and a standard length paper. May be repeated for credit.

RU 370 **3 cr. 3 hr.**
Russian Culture and Soviet Life (In English)
An introduction to Russian life and culture as manifested in Russian geography, art, music, film and literature. National characteristics of the Russian people and their influence on Soviet institutions. Everyday life in the Soviet Union. Includes a significant audio-visual component.

RU 490
Independent Study in Russian
Open to students in the language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

Sociology

Coordinator
Grainger Browning

Professors
Grainger Browning
Harold Melvin

Asst. Professors
Augustine Aryee
Patricia Macrides

Sociology is one of the disciplines which make up the Behavioral Sciences Department. A major field in itself leading to the B.A. or B.S. degree, Sociology courses are also a component of other majors in the Behavioral Sciences.

The major requires 36 semester hours of undergraduate course work in sociology approved by the Faculty. Programs are designed for students who are interested in employment immediately on graduation and also for the student who plans to continue on to graduate school. It is a desirable major for pre-law, public administration, public relations, social welfare and related graduate programs. SO 110, Introductory Sociology, is a prerequisite for all other courses in this area.

Each of the regular faculty members serves as advisor to students majoring in Sociology and in conference with the advisee will design a program suited to the student's goals. Strongly recommended for all majors are SO 213 and SO 214, Social Research Methods and Analysis, and SO 216, Social Theory. HS 350, Introduction to Social Work, and HS 374, Probation, are acceptable for the 36 semester hour requirement for a Sociology major.

SO 110 **3 cr. 3 hr.**
Introduction to Sociology
This course examines the structure and process in human group behavior, with consideration of development, maintenance, and change variables. *Prerequisite for all other Sociology courses.*

SO 213 **3 cr. 3 hr.**
Basic Skills of Social Research
The purpose of this course is to develop skills in research concepts and techniques (e.g., interviewing, participant observation, questionnaire construction, etc.) related to sociological study and practice.

SO 214 **3 cr. 3 hr.**
Application of Social Research in the Work Setting
This course proposes to provide a deeper understanding of the basic techniques of social research. The application of these techniques to consumer behavior, clients, organizations, social agencies, and case studies is examined. Students are also exposed to the computer and its relevance to problem-solving situations in such fields as law, business, medicine, and government service.

SO 216 **3 cr. 3 hr.**
Social Theory
Social philosophy precursors, sociological scientific theorists from Comte to Parsons, and contemporary schools of thought in Sociology are studied.

SO 225 **3 cr. 3 hr.**
Introduction to Cultural Anthropology
This course includes the study of cultures: technology, economics, culture and personality, art, and applied anthropology.

SO 235 **3 cr. 3 hr.**
Sociology of Language
This specialized course focuses on elements of phonology, dialectology, linguistics, semantics, lexicology, and etymology in relation to age, sex, class and peer group variables.

SO 244 **3 cr. 3 hr.**
Urban Sociology I: Community Development
The structure and function of cities in history and modern life are studied in this course.

SO 245 **3 cr. 3 hr.**
Urban Sociology II: Community Analysis
This course examines the community as a social system. The course includes field study involving observation and analysis of local communities.

SO 250 **3 cr. 3 hr.**
Race and Ethnic Relations
This course includes concepts and research relating to understanding and evaluation of relations among ethnic and racial groups with particular emphasis on current black/white relations in America.

SO 251 **3 cr. 3 hr.**
Future Studies: Sociological Perspectives
Students examine various techniques for projecting the future and develop an awareness of alternatives for the future and significant variables.

SO 362 **3 cr. 3 hr.**
Sociology of Religion
The emphasis of this course is on structure and function of religious organization, beliefs, and practices. Current issues in American religion.

SO 363 **3 cr. 3 hr.**
Sociology of The Family
Structure and function of the family, and trends and practical solutions to problems in family living are analyzed.

SO 365 **3 cr. 3 hr.**
Sociology of Organizations and Bureaucracy
This is a study of industrial organizations and the process of industrialization. The impact of technology and related factors on work organizations will be analyzed.

SO 370 **3 cr. 3 hr.**
Social Problems
Consideration is given to major social problem areas such as: energy, family, government, poverty, health, crime, etc. Etiology, analysis, and prognosis are studied.

SO 375 **3 cr. 3 hr.**
Criminology
This course provides a survey of the field of criminology including such topics as: criminal statistics, rape, homicide, assassination, property crimes, capital punishment, police, courts, and corrections.

SO 376 **3 cr. 3 hr.**
Juvenile Delinquency
This course examines major sociological theories of delinquency including an analysis of empirical studies. Attention will also be given to the juvenile judicial system and proposed treatment programs.

SO 400 **3 cr. 3 hr.**
Topics in Sociology
Offered for supplementation and enrichment of offerings in the major. With permission this course may be taken more than once. Topics which have been offered include: Social Stratification and Medical Sociology.

SO 487, 488 **6 cr. 15 hr.**
Internship in Sociology
Arranged in consultation with Faculty and carried out under auspices of an approved agency or program in the community, or a state or federal agency or office. This experience should be of such a nature as to develop skills in sociological practice, principles, and/or research.

SO 489 **12 cr. 30 hr.**
Internship in Sociology
See SO 487 for description and prerequisites.

SO 490 **3 cr.**
Independent Study
A program of study designed with the student to make possible in-depth learning in a specific topic for which no regular course is available. For Sociology majors only. May be taken no more than two times with permission of Faculty. An Independent Study may be taken for 1 to 6 s.h.

Spanish

Asst. Professors
Anthony Feroci
Jeanette Scharf

The Minor in Spanish

The minor in Spanish will require a minimum of 15 semester hours. Students must take Intermediate Spanish I and II or be able to demonstrate proficiency at that level. Elementary Spanish will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in Spanish literature, composition or culture which will yield the requisite 15 hours of credit.

For those students starting Spanish above the intermediate level, SP 490 Independent Study in Spanish, may be repeated for credit.

SP 100 **3 cr. 4 hr.**
Spanish for Beginners I
Correct pronunciation, reading ability and fundamentals of grammar and syntax, The premise is to teach the student the four language skills of listening, speaking, reading and writing. Cultural topics are integrated with these skills. Spanish gradually becomes the working classroom language. Students with a year or more of high school Spanish should register for Spanish 200.

SP 110 **3 cr. 4 hr.**
Spanish for Beginners II
Continuation of SP 100 or permission of the instructor.

SP 200 **3 cr. 4 hr.**
Intermediate Spanish I
A discussion of advanced grammar points and readings dealing with Spanish life. Emphasis will be on developing conversational fluency.
Prerequisite: SP 100 or permission of instructor.

SP 210 **3 cr. 4 hr.**
Intermediate Spanish II
Continuation of SP 200 or permission of the instructor.

SP 300 **3 cr. 3 hr.**
Hispanic Culture
This course is designed to provide students with a knowledge and understanding of the Hispanic world through a study of the historical and cultural development of different countries with emphasis on contemporary problems and social customs of the Hispanic in the USA.
Prerequisite: SP 210 or permission of the Instructor.

SP 330 **3 cr. 3 hr.**
Hispanic Literature
Selected works reflecting the Hispanic heritage in contemporary Spanish and Latin American literature.
Prerequisite: SP 210 or permission of the Instructor.

SP 350 **3 cr. 3 hr.**
Spanish Conversation and Composition
This course is designed to teach skills that will increase the student's overall ability to read, speak and write the language. Students will be expected to write compositions on topics developed in class.
Prerequisite: SP 210 or permission of the Instructor.

SP 400 **3 cr. 3 hr.**
Practical Spanish for the Public Services Professional I
Spanish for people in public services, human services, nursing, medical technology, special education, with social emphasis upon the cultural and psychological characteristics of Spanish speaking peoples.

SP 410 **3 cr. 3 hr.**
Practical Spanish for the Public Services Professional II
Continuation of SP 400 or Instructor's permission.

***SP 488** **3 cr. 3 hr.**
Methods for Teaching Spanish in the Elementary School
Techniques and materials for use in elementary school.
Prerequisite: Minimum of 12 semester hours beyond beginner's level and permission of Instructor.

SP 490
Independent Study in Spanish
Open to students in the language with the permission of the supervising Instructor and the Department Chairman. Meeting times and credit by arrangement.

Special Education

Chairman
Anne May

Professors
Rosemarie Giovino
Anne May

Assoc. Professors
Katherine Flynn
Lawrence Gomes
Sandra Miller-Jacobs
Hattie Moreland
Donald Rapp
Michele Zide

Asst. Professors
Carla Borg
Elaine Francis
William Schofield

The Special Education Department at Fitchburg State College is the oldest and most comprehensive state program in the Commonwealth of Massachusetts. In this program, emphasis is given to content, application and the ability to use strategies and resources in working with children and adults who have special needs.

Fitchburg State College provides three major options within the Special Education curriculum, Teacher of Children with Moderate Special Needs (N-9) and (5-12) and Teacher of Young Children with Special Needs (ages 3-7) and Teacher of Children with Severe Special Needs (N-12) are offered.

Majors in Special Education

I. Teacher of Children with Moderate Special Needs (N-9) and (5-12)
A performance-based program, this undergraduate major prepares students to provide direct services to handicapped children and adults. This is a combined special education and elementary sequence of study which includes concentration in the areas of mental retardation, emotional disturbance behavioral disorders and learning disabilities.

The Bachelor of Science in Special Education with specialization in Special Education for the teacher of children with Moderate Special Needs must include SE 210, 220, 252, SE 390, 365, 386; PY 110, 371, 275, 377; AR 280 or MU 480; MA 283 and four electives in Special Education which are chosen from courses SE 230 through SE 490. All Special Education courses must be taken at Fitchburg State College. All requirements are subject to change to the extent required by state regulations governing certification of educational personnel. Certification in elementary and special education may be obtained upon completion of this program.

II. Teacher of Young Children with Special Needs (ages 3-7)
The Department of Special Education and the Early Childhood component of the Education Department have combined resources to undertake a comprehensive program to prepare personnel to teach young children with handicaps.

Students are prepared with a firm foundation in early childhood growth and development concepts. Through observation, course work, and student teaching students will be exposed to assessment and methods and materials appropriate for young children with special needs. Practicum experience is required in both a special needs classroom and in a conventional classroom setting.

The Bachelor of Science in Education for the Teacher of Young Children with Special Needs must include ED 100, 210, 211, 220, 240, 270, 310, 311, 405; SE 200, 251, 350 (section II), 390; and 12 semester hours of student teaching (SE 388, ED 384) or ED 385. SE 210 is recommended for all students in Special Education. SE 340 is suggested requirement.

III. Teacher of Children with Severe Special Needs (N-12)
The Teacher of Children with Severe Special Needs is a competency based four year teacher preparation program designed to provide students with the necessary skills to teach children and adults labeled as severely or profoundly

handicapped. The program includes college classes and field experiences with school age and adult handicapped individuals and will develop skills necessary for direct service to the severely handicapped population. Specific objectives of the program are to prepare teachers who are competent in criterion referenced assessment, task analysis, curriculum selection and development, programming and behavior management. Graduates of the program will be able to help individuals with handicaps make significant behavioral gains to enable them to function at their potential in the community.

The Bachelor of Science in Education for the Teacher of Children with severe special needs must include PY 110, 220, 275, 371, BI 120, SE 210, 300, 340, 390, 410, ED 270, the Integrated Program for the Severely Multiply Handicapped, twelve semester hours of practicum (student teaching) and three electives in Special Education.

SE 200 **3 cr. 3 hr.**
Nature and Needs of the Young Child with Special Needs
The basic handicapping conditions as they effect children from birth to seven years will be reviewed with a focus on educational programming. The rationale for early intervention, the importance of the child-environment interaction and current legislation affecting young children with special needs will be discussed. Observations of programs servicing young children with special needs will be made.
Prerequisite: Young Children With Special Needs, others by consent of Instructor.

SE 210 **3 cr. 3 hr.**
Introduction to Individuals with Special Needs
An introductory course in Special Education focusing on the characteristics and needs of exceptional children and adults; the total special education delivery system; controversies and issues in the field; relevant state and federal legislation and court cases.

SE 220 **3 cr. 3 hr.**
Individuals with Moderate Special Needs
A concentrated course that focuses specifically on the areas of mental retardation, emotional disturbances and learning disabilities. Also, theoretical approaches for managing behavior will be emphasized. A 30 hour practicum is required.
Prerequisite: SE 210.

SE 230
Alternative Programs in Special Education
This course is designed to prepare students with the skill necessary to function in alternative programs for persons with special needs, from birth to adulthood.

1. Students will be able to identify alternative programs serving persons with special needs on a continuum and evolving in a cascade for services from birth through adulthood.

2. Students will be able to examine the organizational structure and identify the administrative design, funding sources, staffing patterns, agency collaboration, and community outreach of an alternative program.

3. Students will develop a case report on one client.

4. Students will identify components for being a client advocate.

5. Students will design a practicum with an agency under the supervision of an agency professional and a college supervisor.
Prerequisite: Integrated Program (SE 365, 366).

SE 240 **3 cr. 3 hr.**
Seminar in Special Education I: Alternative Secondary Education and Vocational Training Programs
A seminar and field work course that examines programs for low incidence, severely handicapped (MR, ED, and Multi-handicapped) adolescents and adults. In addition to field work teams of students will research and report on various alternative programs, and explore

evaluation procedures utilized for placement and curriculum development. This course will focus on the role of the Special Educator as a member of the professional team in alternative programs.
Prerequisite: Integrated Program.

SE 245 **3 cr. 3 hr.**
Seminar in Special Education II: Research in the Classroom
This course is designed to acquaint students with the principles and procedures of applied behavior analysis. Through the study of theory and participation in practicum experiences students will be able to make direct and daily measurements of children's behavior, record and chart data, make trend analyses, devise and use single-subject research designs, and make decisions regarding the effectiveness of their instruction in the basic academic areas (reading, writing, spelling and arithmetic); and, in social skills.
Prerequisite: SE 350 or consent of Instructor.

***SE 250** **3 cr. 3 hr.**
Drugs and Schooling
A study of the history of drug use and abuse among school age children and adults. The course involves completing a research orientated learning package and implementing a learning contract designed to meet the students' personalized educational goals related to the topic of drugs and schooling. Topics discussed include preventative and treatment modalities implemented to effect young children, adolescents and adults who have concerns which involve the use of drugs.

***SE 251** **3 cr. 3 hr.**
Identification and Diagnosis of Young Children with Learning Problems
Students will:

1. Analyze the learning process in terms of physiological, neurological, social and language development and demonstrate knowledge of atypical developmental patterns.

2. Select and administer evaluative measures in cognitive, perception, motor, language and academic areas and interpret the results.

3. Plan teaching processes for children with learning problems.
Prerequisite: Language and Speech Development. Field experience required.

SE 252 **3 cr. 3 hr.**
Teaching Children with Moderate Special Needs
This course covers the basic concepts and issues in assessing handicapped children and in analyzing what to teach. It provides pre-service teachers with a set of tools for observing and recording behavior of handicapped children and for measuring children's progress from day to day. The basic models of evaluation are discussed (psychoeducational—task analysis) and concepts and terminology associated with each are analyzed. The course explains the development of instructional objectives based on evaluative procedures and demonstrates various teaching and management approaches used with children with mild to moderate special needs. Finally, the course includes procedures for developing IEP's and the processes for implementation.
Prerequisites: SE 210, 220.

SE 260 **3 cr. 3 hr.**
Affective Developmental Strategies
Students study the affective domain variables as they relate to developmental stages of psychological growth, moral development, achievement motivation, and value clarification. Strategies designed to enhance affective growth within a basic skills curriculum are discussed. Each student designs a unit of study within a basic curriculum subject area utilizing affective strategies to enhance the assessed affective needs of a given population.

SE 300 **3 cr. 3 hr.**
Habilitation and Rehabilitation of the Special Child
An analysis of the adaptive problems of the handicapped as they affect and effect society.
Prerequisite: Integrated Program (SE 365, 366).

SE 310 **3 cr. 3 hr.**
Early Learning Experiences for Exceptional Children
This course emphasizes a developmental approach to working with young children with special needs. Students will compare and contrast various screening and assessment devices used for children ages 0-6 and will be able to use developmental check-lists to plan curriculum. Various infant and preschool programs for young children with special needs will be examined. The importance of play will be discussed (Practicum is required).

SE 330 **3 cr. 3 hr.**
Current Issues in Special Education
This course is designed to assist students in Special Education to gain a broad perspective on the aspects of controversy and change which are influencing the profession. In addition, with the inclusion of diverse and, in some cases, incongruent perspectives, the course is intended to stimulate critical thinking among prospective special educators. Various current issues effecting special needs children, their parents, teachers and the continually changing field of Special Education will be researched, examined, and discussed.
Prerequisite: SE 200, 210, SE 220, 340.

SE 340 **3 cr. 3 hr.**
Characteristics of Severely Multiply Handicapped
The course offers a review of various severe handicaps and their effects on independent functioning. Medical aspects of disabilities will be covered as well as interventions that may need to take place in emergencies. Classroom management techniques for the physically handicapped including positioning and handling and adaptive equipment will be addressed.
Prerequisites: SE 210, 200 (YCSN).

SE 350 **3 cr. 3 hr.**
Behavior Management in the Classroom
This course prepares the students to implement a variety of behavior management techniques e.g., Time-Out, Contingency Contracting, and Applied Behavior Analysis. Emphasis is on the development of a positive problem-solving approach to manage academic and social behaviors. Consideration is also given to developing an awareness of the teacher's behavior and its effect on the behavior of children.

SE 355 **3 cr. 3 hr.**
Behavior Management in the Classroom YCSN
This course is designed for students seeking certification as a Teacher of Young Children with Special Needs. Emphasis is placed on setting limits and ways of recording behavioral changes. Specific behavior management techniques and strategies are examined with consideration given to both behavioral and psychodynamic strategies. Students analyze current literature on behavior management.

SE 360, SE 370 **3 cr. 3 hr.**
Seminar in Special Education I and II

Fall: Tactile and Motor Implications in Learning
A study of the major theories of motor learning in exceptional children. Assessment procedures and teaching methods are emphasized throughout. Students will actively participate in developing and demonstrating activities.
Prerequisites: SE 200, 210, and SE 220.

Spring: Visual Implications in Learning
An introduction to visual impairment in children and youth. Etiology, early identification, methods and materials, and modes of communication (Braille,

large print, low vision aids and new technology) will be stressed. Community and state resources will be incorporated. *Prerequisite: SE 200, SE 210, and SE 220.*

SE 364 **15 cr.**
Integrated Program for Severely Multiply Handicapped
This course will cover assessment, program development and implementation of program in the major curriculum areas (communication, language, motor, socialization, prevocation, A.D.L., sensorimotor, cognition, community living skills) for individuals with severe special needs. These topics will be covered in seminars during the first week of classes, and in bi-weekly seminars for the remainder of the semester during which students will participate in a half day practicum (20 hours weekly).
Prerequisites: SE 210, 340, 410.

SE 365 **9 cr.**
Integrated Professional Program
The Department of Special Education at Fitchburg State College offers the Integrated Professional Program as a unique aspect of the teacher preparation model. The underlying assumption is that more meaningful preparation of teachers occurs when college students and faculty are located in the educational settings in the community and are exposed to realistic learning experiences. The Department has moved this aspect of the preparation model from the college to elementary schools in the community into one twelve (12) credit block. The Program includes theoretical instruction and practical application in the following areas:

1. Curriculum and Methodology

Math
Science
Social Studies Career Education
Reading
Language Arts

2. Identification and Diagnosis of Learning Problems

3. Behavior Management

The college student spends three weeks, 6 hours a day, in an orientation program on campus for course content; 6 weeks 3-4 hours per day on site at an elementary school for prepracticum experiences.

Prerequisites:
PY110 General Psychology.

PY 221 Child Psychology
PY 371 Learning Theory
SE 210 Introduction to Individuals with Special Needs
SE 220 Individuals with Moderate Special Needs
SE 252 Teaching of Children with Moderate Social Needs
SE 390 Language Development and Speech
MA 283 Methods and Materials in Elementary Mathematics
PY 275 Tests and Measurements
AR 280 Art in the Elementary or
MU 480 Music in the Elementary

Eligibility

Students must have a 2.5 cumulative average in Special Education and prerequisite courses.

SE 366 **3 cr.**
Student Teaching Level I
The College student spends 7 weeks at the same elementary school as above in an elementary teaching experience on a full-day basis. SE 365 and SE 366 are taken during the same semester.

SE 380 **3 cr. 3 hr.**
Secondary Programs for Adolescents (14-22) with Special Needs
The college student will attend lectures, complete readings, and participate in discussions related to academic programming for adolescents between the ages of 14 to 22 in a variety of educational settings. Each student will complete a twenty-hour supervised academic skill-related practicum in an educational facility.
Prerequisites: SE 210, 220.

SE 384 **6 cr.**
Practicum I—Teacher of Children with Severe Special Needs
Students will participate in an eight week full day practicum in a classroom for individuals with severe special needs. Responsibilities include assessment, program development, writing and implementation of instructional programs, data collection as well as staff training and self evaluation. *Prerequisite: Integrated Program for Severely and Multiply Handicapped.*

SE 385 **6 cr.**
Practicum II—Teacher of Children with Severe Special Needs
This course is the second phase of the full day 16 week practicum experience and will provide students with an opportunity to work with severely handicapped individuals in placements that differ from traditional educational settings such as workshops, residential facilities, early intervention programs, etc. Responsibilities will parallel those outlined in Practicum I of this program. *Prerequisite: Integrated Program for the Severely and Multiply Handicapped.*

SE 386 **6 cr.**
Practicum Level II
One of the significant aspects of the curriculum is the practicum. All students are assigned to an elementary classroom for eight weeks. The cooperating practitioners selected for this program have been carefully screened in respect to certification requirements, their ability as teachers, and their identification with the program. Each student assumes complete classroom responsibility guided by the cooperating practitioner and the college supervisor. Students receive certification as elementary teachers (1-6).

SE 387 **6 cr.**
Practicum Level III
All students are assigned to a resource room for eight weeks. The cooperating practitioners selected for this program have been carefully screened in respect to certification requirements, their ability as teachers, and their identification with the program. Each student assumes complete classroom responsibility guided by the cooperating practitioner and the college supervisor. Students receive certification as Teachers of Children with Moderate Special Needs (N-9) (5-12). Students seeking certification (5-12) must be assigned to a secondary level resource room and must have completed SE 380 and PY 223 prior to Practicum Level III.

SE 388 **6 cr.**
Practicum (YCSN)
Practicum consists of at least one hundred and eighty (180) clock hours of supervised teaching experience which is primarily with young children (ages 3-7) identified as being in need of special education services. Under the supervision of college faculty and cooperating practitioners students will become increasingly involved in the total classroom program. During the final weeks of the practicum they will assume full responsibility as head teacher for the operation of the classroom to which they are assigned. Students receive certification as Teacher of Young Children with Special Needs (3-7).

SE 390 **3 cr. 3 hr.**
Language Development and Speech
This section addresses the normal development of speech, language and hearing and disorders associated with each of these areas of communication. Students will demonstrate a knowledge of articulation problems and types of hearing losses and their effects on academic learning. In the area of language disorders students will demonstrate an understanding of delayed language and learning disabilities as they relate to reading, math and written language. Students will evaluate speech and language skills of school age children utilizing selected instruments, interpret the results, plan teaching strategies and work with a child. Field experience required. *Prerequisites: PY 221, SE 220.*

SE 395 **3 cr. 3 hr.**
Language Development and Speech YCSN
In this course students will:

(a) Explain normal development of auditory receptive language and auditory expressive language from birth to 7 years;
(b) Analyze linguistic development, phonology, morphology, and syntax;

(c) Compare and contrast various theories of language acquisition;

(d) Select and administer instruments to diagnose receptive and expressive deficits, interpret the results, and plan teaching strategies.

Field based experience required.
Prerequisite: SE 200, ED 100 and ED 211. YCSN majors, others by consent of Instructor.

SE 400 **3 cr. 3 hr.**
Program Development for Children with Learning Problems
In this course students will:

(a) Explain models of language behavior and determine dysfunctioning in factors associated with language development;

(b) Critically evaluate the research and literature relating to the development of linguistic and perceptual-motor performance;

(c) Interpret, compare, and contrast the theories regarding diagnosis and treatment of learning disorders;

(d) Select and administer evaluative measures in the cognitive, perceptual and psychomotor domains;

(e) Plan and write education programs for individual children with moderate to severe handicaps based on assessment data;

(f) Make application of the principles of diagnosis and remediation and the theoretical formulations having relevance for learning disorders in situations dealing with children in the public schools.
Prerequisite: The Integrated Professional Program (SE 365, 366). Field based experience required.

SE 405 **3 cr. 3 hr.**
Issues in Mainstreaming
Course is designed for Early Childhood and Elementary education majors as a post student teaching elective. The issues will be applied to the public school system as they relate to the special needs child. Topics will include litigation, PL 94-142, mainstreaming, teacher expectations, accountability, the educational plan, reporting procedures, peer tutoring, human resources, and program models.

SE 410 **3 cr. 3 hr.**
Teaching Strategies for the Severely Handicapped
This course offers an opportunity, through course work and a weekly practicum, for students to interact with a severely handicapped individual and develop an assessment, educational plan and instructional program for that individual. In addition, the course will outline strategies and techniques for changing behavior of children at this level, and will offer suggestions for meeting the needs of these individuals in the total school program. An overview of services now available for the severely handicapped will also be provided.
Prerequisites: SE 210, 200 (YCSN).

***SE 460** **3 cr. 3 hr.**
Problems in Language Arts for Special Education
Students identify, develop, use resources related to classroom problems in language areas. Stages of development and deviations of exceptional children are emphasized.

SE 468 **3 cr. 3 hr.**
Group Processes and Counseling
This course is specifically designed for special education majors, to provide an overview of the counseling process with handicapped teenagers and adults, including group dynamics using a variety of psychological orientations. Group dynamics include leadership principles, therapeutic processes, and therapeutic techniques. The student will identify specific adjustment problems that may

be related to handicapping conditions. Active classroom presentation of therapeutic techniques will be given. *Prerequisite: SE 210.*

***SE 469 3 cr. 3 hr.**
Community Resources for the Exceptional Child
Identification of agencies, practices, and personnel, development of models, simulation of roles, and production of a guide.

SE 496, 490 3 cr.
Independent Study
Review, development, and synthesizing of a problem in special education. Open to juniors and seniors with permission of Instructor.

Speech

Assoc. Professor Robert Welch
Asst. Professor Eugene Casassa

***SH 01 1 cr. 1 hr.**
Speech Improvement
This is a remedial course. Students are assigned after diagnosis and recommendations of need for speech improvement with individual and group therapy.

SH 100 3 cr. 3 hr.
Introduction to Speech Communication
Students are introduced to the theory and practice of interpersonal and public communication. Topics include: communication theory, self-concept, perception, language, listening, non-verbal communication, and public speaking. Meets General Education speech requirement.

***SH 110 3 cr. 3 hr.**
Argumentation and Debate
Projects are undertaken in argumentation and debate with emphasis on analysis, research, evidence, strategies, briefing, refutation, and the delivery of debates on representative questions. Meets General Education speech requirement.

***SH 120 3 cr. 3 hr.**
Business and Career Communication
Theory and methods of communication are applied to business and career problems. Emphasis is placed on skills especially important to students planning on working for and/or within an organization, such as resume writing, interviewing, and group conference techniques. Meets General Education speech requirement.

SH 130 3 cr. 3 hr.
Effective Speaking for the Electronic Media
This course will introduce the student to a variety of speaking experiences encountered by those who plan to use the electronic media as part of the performance of an occupation. The course should interest students who anticipate speaking roles in industry-made audio and video productions as well as those who aspire to careers as professional broadcasters. The course will include such assignments as the oral delivery of news items and public service announcements. Major attention will be given to the presentation of narratives coordinated with audio and visual aids. Meets general education speech requirements for those majoring in Communications Media.

***SH 140 3 cr. 3 hr.**
Discussion and Conference Techniques
This course explores the fundamentals of group discussion in private and public settings. Emphasis is placed on group structure, leadership, interpersonal relationships, and includes extensive practice in varied group situations. Meets General Education speech requirement.

SH 160 **3 cr. 3 hr.**
Public Speaking
A course of value for all students regardless of major, public speaking is especially useful to students with an interest in public affairs and a desire to influence the decisions of others. The course concentrates on the development of skills and assurance in public speaking through the preparation and presentation of specific forms of public address. Emphasis is given to audience analysis and rhetorical strategies. Meets General Education speech requirement.

SH 210 **1 cr. 1 hr.**
Intercollegiate Debate and Forensics
Opportunities are afforded for study and participation in debate and forensic speaking activities.

***SH 240**
Voice and Articulation
The elements of vocal production and presentation are examined, with special emphasis in the study of and application of phonetic theory. The course is designed for the student desiring improved voice and articulation quality, accuracy, and clarity.

Meets General Education requirement for Speech.

SH 260 **3 cr. 3 hr.**
Persuasion
A study of the causes of listener belief and action gives special emphasis to the dvelopment of strategies to influence listener behavior. Students have the opportunity to devise persuasive campaigns on subjects of their choosing. Meets General Education speech requirement.

SH 261 **3 cr. 3 hr.**
Basic Speech for the Industrial Arts
Methods of communication are applied to the industrial arts. Special emphasis is placed on the basics of articulation and the presentation of technical language and concepts in simplified terms. Idea organization, language use, and delivery techniques are included through extensive practice. Meets General Education requirement for Speech only with Instructor's approval and permission from student's advisor.

***SH 280** **3 cr. 3 hr.**
Rhetorical Criticism
An exploration of approaches to the rhetorical criticism of significant speeches and speech movements, past and present, this course includes rhetorical, literary, historical, linguistic, and quantitative methods of criticism.

***SH 420** **3 cr. 3 hr.**
Children's Theatre
This is an introductory course in theatre for children, its principles and practices. It covers aspects of play production for juvenile audiences: script selection and evaluation, directing, acting, and staging techniques.

SH 425 **3 cr. 3 hr.**
Stagecraft and Theatre Production
In a laboratory situation, which is project oriented, the student will take one selected play from initial sketches through to the finished model and plans for production, including design, set building, costuming, lighting, and management.

SH 430 **3 cr. 3 hr.**
Mime and Movement in Theatre
This workshop-oriented course utilizes the basic techniques of theatrical mime and movement with emphasis on developing each student's potential for effective physicalization on the stage.

SH 435 **3 cr. 3 hr.**
Acting
This course includes fundamentals of stage speech and movement, creative mime and improvisation. Plays are read and analyzed. Systematic technique building and scene study are heavily emphasized.

SH 490 **3 cr.**
Independent Study
Exceptional students excelling in scholarship may, upon approval of both department head and advising instructor, undertake Independent Study.

College Directory

Buildings and Grounds

The 90-acre campus includes academic buildings, an administration complex, three residence halls, an apartment residence complex, the library campus center, an auditorium theater, a dining commons, and gymnasium. A short distance north of the campus is a 36-acre athletic and recreational area and the McKay Campus School, a cooperative laboratory facility involving college education students and elementary children. The College also owns a 120 acre conservation area located in three neighboring communities.

Anthony Building, 1936
Named for Willis B. Anthony, Director of the Industrial Arts Department, during the period 1909-1947 and serves as a warehouse and supply distribution center, the Grounds Department and the Office of the Athletic Director.

Aubuchon Hall, 1966
Named for William E. Aubuchon, Jr., Trustee of the Massachusetts State College System, 1965-1974, and is a residence hall for 380 students.

Facilities Building, 1978
Located on the west side of the campus quadrangle and houses the office of the Director of Facilities, the power plant, and Campus Security.

Condike Science Building, 1963
Named for Dr. George F. Condike, professor of Chemistry 1947-1982 and Academic Dean 1954-1956, it houses the offices of the Vice President for Academic Affairs and the Undergaduate Dean and the following academic departments: Biology, Chemistry, Medical Technology, and ROTC.

Conlon Building, 1976,
Named for Florence Conlon, professor, 1920-1961, houses the offices of the Humanities Department, including the Art, Music and Philosophy faculties, the Industrial Arts Department, part of the Communications/Media Department, the photography laboratories and the television studio.

Edgerly Hall, 1900
Named for Joseph G. Edgerly, Superintendent of Schools in Fitchburg, 1875 to 1914, it contains the Data Processing Center, and the Computer Science Department.

Hammond Building, 1975
Named for James J. Hammond, Instructor and Commonwealth Professor, 1937-1962; President, 1963-1976; Chancellor of the Massachusetts State College System, 1976-1981. The Hammond Building contains the Campus Center, Library, Career Services, Counseling Services, Learning Resource Center, the Fitchburg State College Film Library, and the A.I.D. office.

Herlihy Hall, 1957
Named for Charles M. Herlihy, Principal, 1927-1932 and President, 1932-1944, it is a coed residence hall for 142 students.

Holmes Dining Commons, 1973
Named after Roger Franklin Holmes, Professor of History from 1928 to 1969.

McKay Campus School, 1971
Named for Edith McKay who in 1950 donated ten acres of land to the City of Fitchburg. Besides being a campus laboratory school, the McKay Campus School contains the offices of the Departments of Foreign Languages, Early Childhood, Elementary, Secondary, and Special Education, Geography Earth Science, Physics, and the Business Administration Departments.

Miller Hall, 1903
Named for Joel D. Miller, a Massachusetts State Senator, 1894-1897 and member of the State Board of Education, 1895-1909, it contains the English, Speech, Mathematics and Social Science Departments, the college Health Center, and The Fitchburg State College Education Association.

Newman Center, 281 Highland Avenue
Owned by the Worcester Roman Catholic Diocese, is the Center for the Newman Association and includes an ecumenical chapel, a lounge for studying and socializing, a kitchen and recreation room for all students.

Parkinson Gymnasium, 1957
Named for William D. Parkinson, principal from 1920 to 1927, contains offices and classrooms of the Physical Education Department.

Percival Hall, 1909
Named for Harry F. Percival, professor, 1931-1953, it houses the Behavioral Science Department, including the Psychology, Sociology and Human Services offices, and the Center for the Study and Research in Human Development.

Russell Towers, 1971
Named for Dean Helen Ross Russell, Professor 1949-1966. It is a coed residence hall for 405 students.

Sanders Administration Building, 1963
Named for William J. Sanders, President 1945-1950, contains the offices of the President and his support staff, including the Community Relations personnel. The Vice President for Student Services, the treasurer, the College business office, Financial Aid, Registrar, Admissions and the Dean of Graduate and Continuing Education are also housed in the Sanders Building.

Thompson Hall, 1895
Named for John C. Thompson, principal 1895 to 1920, it houses the offices of the Dean of Graduate and Continuing Education, Director of Field Services, the Nursing Department, the Advising Center, and the Communications Media Department.

Town House Complex, 1978
A 7-building complex, which provides apartment style units for groups of 5, 6, or 7, with a separate bedroom for each member of the group. The apartment buildings are coed, but the sub units in the building are not. The complex has two apartments, designed for the handicapped.

Weston Auditorium, 1959
Named for President Ralph Weston who was Instructor in Math; Dean of Men, 1938-52 and President of the College, 1953-63. Weston Auditorium seats 800 people and is used for lectures, live entertainment, movies, and classes.

Parking Regulations

Parking facilities at Fitchburg State College are limited, but have been gradually expanded to a present capacity of 1,000 cars.

All vehicles utilizing the parking facilities at Fitchburg State College must display the proper identification sticker. Stickers may be purchased at the Campus Security office located in the Power Plant Building.

Resident student parking is limited to Junior and Senior residents whose curricula require travel to nursing and teaching assignments off campus. For further information, contact the Campus Security Department.

More specific information can be found in the booklet entitled "Motor Vehicle Regulations."

Animals on Campus

Due to health and safety considerations, no animals can be allowed on campus or in campus buildings at any time. Obvious exceptions would be seeing-eye dogs and laboratory animals.

Massachusetts Trespass Act

Fitchburg State College is governed by the Massachusetts Trespass Act, enacted June 2, 1969.

Trespassing Upon the Land of Certain Institutions

Whoever willfully trespasses upon land or premises belonging to the Commonwealth, or to any authority established by the general court for purposes incidental to higher education ...after notice from an officer of any of said institutions to leave said land, remains thereon, shall be punished

by a fine of not more than $50 or by imprisonment for not more than three months.

The following administrators have information on subject matter listed below:

The President
General interests of the College.

The Vice President for Academic Affairs
Academic services, faculty and academic professional staff.

The Undergraduate Dean
Curriculum, academic work of students.

The Director of Facilities
Space allocation, handicapped accessibility, all construction, maintenance and repairs, security.

The Registrar
Academic records, transcripts.

The Vice President for Student Services
Financial Aid, scholarships, remunerative work, housing, athletic programs, career planning and placement.

Director of Admissions
Admission to the freshman class and transfer from another college.

Bursar
Payment of bills and business matters.

Class Cancellations

In the event of inclement weather the cancellation of classes will be reported on WBZ, WEIM, WFGL, WTAG, WGAW, WEEI and WLMS radio stations.

Board of Trustees

P. Warren Keating, Chairman	3/1/86
John Grado, JR., Vice Chairman	3/1/85
Linda E. Byrne, Secretary	3/1/87
Christopher P. Callahan	3/1/89
Bayla Cornell	3/1/89
Gerald J. Crowley	3/1/87
Herbert E. Dunnington	3/1/86
William G. Flynn	3/1/87
Bernard Foley	3/1/89
John E. Howard	3/1/87
Alfred J. LeBlanc	3/1/85

Administration

Office of the President

VINCENT J. MARA
President
BSEd Worcester State College
EdM Worcester State College
PhD University of Connecticut. 1976

PATRICK F. DELANEY, JR.
Vice President Academic Affairs
AB Providence College
AMT Brown University
PhD Brown University. 1979

LON S. VICKERS
Vice President Student Services
BA University of New Mexico
MA University of No. Colorado
PhD University of No. Colorado. 1979

MICHAEL T. RIVARD
Treasurer
AA Worcester Junior College
BS Boston University
MA Anna Maria College. 1966

TERRANCE CARROLL
Assistant to the President
AB Northeastern University
MEd Fitchburg State College. 1974

THOMAS COATES
Director, Personnel Relations
BA Western Michigan College
JD New England College of Law. 1974

DANIEL S. FLYNN
Assistant to the President
AA Worcester Junior College
AB Assumption College. 1978

GEORGE E. CHARTIER
Director of Information Services
BA Westfield State College. 1983

ROY HALL, III
Director, Management Information Systems
BS Framingham State College. 1977

DENISE POPKO
Staff Assistant
AS Greenfield Community College
BS Fitchburg State College. 1979

PATRICIA MORRISSEY
Staff Assistant Computer Programmer
BS Worcester State College. 1980

JANE LEWICKE
Staff Assistant/Programmer Analyst
BS Lowell Technological Institute. 1984

ELIZABETH M. KANE
Staff Assistant Administrative Services
Certificate, Salter Secretarial School. 1976

Academic Affairs

PATRICK F. DELANEY JR.
Vice President, Academic Affairs
AB Providence College
AMT Brown University
PhD Brown University. 1979

CHRISTINE COSGROVE
Dean, Undergraduate
AB Mt. Holyoke College
MS Georgetown University
PhD Georgetown University. 1971

FRANZ A. NOWOTNY
Dean, Graduate & Continuing Education
MA University of Vienna, Austria
PhD University of Florida. 1983

RICHARD F. CONDON
Director, Student Records Registrar
BS Fitchburg State College
MEd Fitchburg State College. 1959

LAWRENCE A. OVIAN
Associate Dean, Graduate and
Continuing Education
AB Bates College
EdM Pennsylvania State University
EdD University of Massachusetts. 1971

JOSEPH A. ANGELINI
Director, Admissions
BA Providence College
MEd Boston College
CAGS Boston University. 1958

MICHAEL FIORENTINO, JR.
Associate Dean Principal,
McKay Campus School
BSEd Fitchburg State College
MEd Boston University
EdD University of Massachusetts. 1975

WILLIAM T. CASEY
Director, Library
BS Boston College
MA Boston College
MS Simmons College. 1967

JOHN J. MAZEIKA
Director of Institutional Research
BS College of the Holy Cross
MEd Boston College. 1966

ROSEANNA P. BOWERS
Director, Minority Affairs/AID
BA Lincoln University
MEd University of Massachusetts. 1984

MARKE M. VICKERS
Associate Director, Admissions
BA Ohio Wesleyan University
MA University of Northern Colorado. 1979

JOSEPH WAGNER
Assistant Director, Admissions
BA College of the Holy Cross. 1979

SHARON K. CHANDLER
Assistant Director, Admissions
BFA Southeastern Massachusetts
University. 1981

CATHERINE RUSSELL
Coordinator Special Programs
BS Bridgewater State College. 1984

ANDREW MATTHEWS
Staff Assistant, Industrial Technology
Certificate, Printing Trades, Greenfield
Vocational High School. 1981

JOSEPH P. RAK, JR.
Staff Assistant Counselor Aid
BA University of New Haven
MS Fitchburg State College. 1981.

EARSCELLE WILKERSON
Staff Assistant AID/Minority Affairs
BA Lowell State College
MA Clark University. 1983

HOWARD J. RIVERS
Staff Assistant, Image Systems
Certificates: Main Photographic School,
Nikon School Seminar. 1977

ROBERT THOMAS
Staff Assistant, Image Systems
BA Fitchburg State College
MAT Fitchburg State College
MEd Fitchburg State College. 1976

MARY CHARTRAND
School Nurse, McKay Campus School
RN Burbank Hospital. 1974

Student Services

LON S. VICKERS
Vice President, Student Services
BA University of New Mexico
MA University of No. Colorado
PhD University of No. Colorado. 1979

JOSEPH P. FARRAGHER
Assistant to Vice President
Student Services
BS Bentley College. 1983
MA University of Vermont

MARTHA EVERETT
Acting Director of Financial Aid
BS St. Michael's College. 1981

ELIZABETH KRUCZEK
Director, Athletics
BS Boston University
MEd Worcester State College. 1966

RAOUL REBILLARD
Director, Student Union
BS University of Maryland
MS So. Connecticut State College. 1975

CARL JOHNSON
Staff Physician
BA University of Vermont
MD University of Florida. 1983

JEANNE BAKER DRISCOLL
Director, Career Services Center
BA University of Minnesota
MEd The Pennsylvania State University
PhD The Pennsylvania State
University. 1982

VICTORIA BACON
Staff Associate Counselor,
Counseling Center
BA Fitchburg State College
MA Anna Maria College. 1981

KATHLEEN O'NEILL
Staff Associate, Coordinator of Health
Services—Nurse Practitioner
Diploma St. Frances Hospital School
of Nursing

CHRISTINE NELSON
Director—Resident Life
BA, SUNY-New Paltz, MA, UCLA;
PhD SUNY-Albany. 1982

MICHAEL B. McNAMARA
Staff Assistant- Weekend and Night
Supervisor Campus Center
BA University of Massachusetts. 1976

JOHN F. MARCUS
Staff Assistant, Financial Aid
BS Business Administration. 1984

JONATHAN H. DANA
Staff Assistant
BS Northeastern University. 1981

DONALD CARLSON
Assistant Director, Residence Life
BA Worcester State College. 1983

LINDA SWEARS
Staff Assistant, Residence Director
BA University of Southern Maine. 1981

SALLY STEPHENS
Staff Assistant
BS Clark University
MA University of Pennsylvania. 1982

Treasurer

MICHAEL T. RIVARD
Treasurer
AA Worcester Junior College
BS Boston University
MA Anna Maria College. 1966

SAMUEL C. JOHNSTON
Staff Assistant, Purchasing
AA New England School of
Accounting. 1973

EDWARD F. LEARY
Staff Assistant
BS in BA Boston University,
MEd Fitchburg State College. 1971

MARY L. LEARY
Staff Assistant
AA Mount Wachusett Community College.
1972

Facilities

STEVEN LANCIANI
Director of Facilities
BS Lowell Technological Institute. 1983

ARTHUR W. TRENOWETH
Staff Assistant, Facilities
AA Northshore Community College. 1982

JOSEPH C. MCDONALD, JR
Staff Assistant, Campus Police
BA Boston College
MBA Suffolk University. 1981

Faculty

ADDORISIO, Rose Ann
BSEd Fitchburg State College
MEd Fitchburg State College
Assistant Professor,
McKay Campus School. 1969

ALLEN, William V.
BS University of Florida
Assistant Professor, Military Science. 1984

ANDERSON, Neal
AB University of Utah
MS University of Utah
PhD Cornell.
Professor, Biology. 1970

ANDREWS, James
BSEd Fitchburg State College
MEd Fitchburg State College
CAGS University of Connecticut
Assistant Professor,
Industrial Technology. 1975

ANDRUSAITIS, Benjamin
BS University of Lowell
MS Northeastern University
Instructor, Biology. 1983

ANGELINI, Joseph A.
AB Providence College
EdM Boston College
CAGS Boston University
Director of Admissions and
Assistant Professor, Mathematics. 1958

ANTAYA, David
BS University of Massachusetts
MA University of No. Colorado
Instructor, Physical Education. 1981

ANTTILLA, Faith
Massachusetts Professional
Librarian Certificate
Library Associate. 1966

ARES, Henry
BA University of Moncton (Canada)
MEd Fitchburg State College
Assistant Professor,
McKay Campus School. 1970

ARNOLD, Lawrence
BA King's College
MA Fordham University
PhD Trinity College (Dublin)
Professor, History. 1968

ARSENAULT, Elmer
BS Tufts University
MFA Syracuse University
Associate Professor, Art. 1958

ASANO, Belinda
BSN Boston School of Nursing
MS Boston University School of Nursing
Instructor, Nursing. 1982

ATAIE, Abdollah
BS Iran University of Science
and Technology
MS Boston University
PI Northeastern University
Assistant Professor,
Industrial Technology. 1983

ARYEE, Augustine
BA Northeastern University
MA Northeastern University
PhD Boston University
Assistant Professor, Sociology. 1982

BABICH, George
BA Atlantic Union College
MS Loma Linda University
MS University of New Hampshire
PhD University of New Hampshire
Associate Professor, Biology. 1978

BANNON, Lillian
BS Nursing Ed Boston College
School of Nursing
MEd Boston College
MA Assumption College
Associate Professor, Nursing. 1962

BARBARESI, Patricia
BS Fitchburg State Teachers College
Ed Fitchburg State Teachers College
MA University of Connecticut
PhD Cornell University
CAES Boston College
Professor, Education. 1965

BARBATO, James
AB Assumption College
MA Clark University
PhD Boston University
Professor, Geography. 1972

BARKER, Willam
AB Boston University
MA Brandeis University
PhD Brandeis University
Professor, English. 1971

BATTINELLI, Thomas
AA Boston University

BS Boston University
MEd Boston College
EdD Boston University
Chairman and Professor,
Physical Education. 1960

BECHIS, Donna
BFA Hunter College
MFA University of Pennsylvania
Associate Professor, Art. 1974

BENTLEY, Robert
BA Wayne State University
MA Wayne State University
Assistant Professor, Mathematics. 1977

BERNSTEIN, Alan
BA Hofstra University
MA University of New Hampshire
PhD Tufts University
Professor, Psychology. 1969

BESNIA, Howard
AB Clark University
BFA Yale University
MFA Yale University
Associate Professor, Industrial Arts. 1960

BISK, Richard
BA Drew University
MS University of New Hampshire
ASA Society of Actuaries
PhD Clark University
Assistant Professor, Mathematics. 1982

BOGOJAVLENSKY, Ann
AB Mount Holyoke College
MA Columbia University
MBA Boston University
Assistant Professor,
Business Administration. 1980

BOISVERT, Dorothy
BS Merrimack College
MEd University of Lowell
Instructor, Biology. 1983

BOND, George
AB Dartmouth College
MS University of Rhode Island
PhD University of Rhode Island
Professor, Biology. 1973

BORG, Carla
BA West Virginia Wesleyan College
MEd Boston State College
Assistant Professor,
Special Education. 1969

BOURN, Colin
AB St. Michael's College
MEd Fitchburg State College
MA University of Massachusetts
Assistant Professor, English. 1965

BOURSY, John
BS Holy Cross College
MBA Clark University
Associate Professor, Business
Administration. 1964

BOWERS, William
BSEd Eastern Michigan University
MS Michigan State University
EdD University of Massachusetts
Professor, Communications Media. 1964

BRADY, Michelle
BSN Boston University
MSN Boston University
Instructor, Nursing. 1976

BREEN, G. Jefferson
AB Clark University
MA Clark University
EdD Clark University
Associate Professor, Psychology. 1971

BROWN, William
BSGE University of Omaha
EdM Boston University
EdD Boston University
Chairman and Associate Professor,
Computer Science. 1972

BROWNING, Grainger
AB Shaw University
MA Boston University
PhD Boston University
Professor, Sociology. 1966

BUCHOLC, Stanley
BA Glassboro State College
MA W. Virginia University
EdD W. Virginia University
Associate Professor, Industrial Arts. 1976

BUDZ, Judith
BA University of Michigan
MA Tufts University
PhD Northwestern University
MBA Clark University
Associate Professor, English. 1974

BURKE, John
AB Boston College
AM Fordham University
MA University of New Hampshire
PhD Brown University
Chairman, Humanities Department and
Professor, Russian and German. 1969

CAGGIANO, Diane P.
AA Cape Cod Community College
BS Babson College
MBA Babson College
Instructor, Business Administration. 1983

CAREY, David A.
BA St. Michael's College
MS University of Massachusetts
Assistant Professor, Business Administration. 1980

CARNEY, Roger F.X.
BS Purdue University
MSIA Purdue University
Professor, Military Science. 1980

CARSON, Norman
BS State University College of New York at Brockport
MS State University College of New York at Brockport
Chairman and Assistant Professor, History. 1964

CARSTEN, Teresa
BS State University of New York
EdM Boston University
Assistant Professor, Communications Media. 1974

CASASSA, Eugene
BSEd Fitchburg State College
MA Columbia University
Assistant Professor, Speech. 1958

CASE, George
BA College of Wooster
MA University of Massachusetts
Assistant Professor, English. 1964

CHAMPLIN, Robert
BS Bridgewater State College
EdM Boston University
PhD Ohio State University
Professor, Geography. 1972

CIOTTONE, Judith L.
BS College of St. Elizabeth
MA Clark University
PhD Clark University
Assistant Professor, Chemistry. 1982

CLARK, John
BA American International College
MA Clark University
Assistant Professor, History. 1962

CLARK, Robert W.
AB Brown University
MEd State College at Bridgewater
MA Rutgers University
Assistant Professor, Mathematics. 1967

COLBERT, James, Jr.
BA Lateran University, Rome, Italy
MA University of Barcelona, Spain
PhD University of Navarre, Pamplona, Spain
Professor, Philosophy. 1982

CONDON, Richard F.
BSEd Fitchburg State Teachers College
EdM Fitchburg State Teachers College
Director, Student Records Registrar and Instructor. 1959

CONE, Linda
BSA Fitchburg State College
MLS University of Rhode Island
Library Assistant. 1980

CONLIN, James
BA Dartmouth College
MBA University of Pennsylvania
Instructor, Business Administration. 1982

COPOULOS, Nicholas
BS Boston University
MEd Boston University
Assistant Professor, Mathematics. 1957

CORNING, Bruce
BA University of South Dakota
MA University of Wisconsin at Eau Claire
Assistant Professor, Military Science. 1983

COSGROVE, Christine
AB Mt. Holyoke College
MS Georgetown University
PhD Georgetown University
Dean, Undegraduate, and Associate Professor, Mathematics. 1971

CROWLEY, Harry
BS Bates College
EdM Boston University
EdD Boston University
Professor, Behavioral Sciences. 1956

CUNNINGHAM, Lee
BS Springfield College
DPE Springfield College
MEd University of Massachusetts
Professor, Physical Education. 1967

CUSACK, Martin
AS Bentley College
BBA Northeastern University
MS Bentley College
CPA
Assistant Professor,
Business Administration. 1982

CZAPRAN, Elizabeth
BS University of Massachusetts
MEd University of Massachusetts
Assistant Professor,
McKay Campus School. 1972

DECESARE, Richard
BS Holy Cross College
MA Boston College
PhD Boston College
Professor, Philosophy. 1962

DECHENE, Lucy I.
BS University of San Francisco;
MS University of California at Riverside
PhD University of California at Riverside
Associate Professor, Mathematics. 1978

DENIKE, Lee
BA State University of N.Y. at Albany
MA State University of N.Y. at Albany
MEd State University of N.Y. at Buffalo
PhD Kent State University
Professor, Communications Media. 1974

DESMOND, Harold
BS Fitchburg State College
MEd Fitchburg State College
CPGSP Boston College
Assistant Professor,
McKay Campus School. 1967

DICK, Stanley
AB Brooklyn College
MA Harvard University
PhD Harvard University
Chairman and Professor, Biology. 1971

DIETER, Janice Wong
BS University of Southern California
PhD University of Pennsylvania
Instructor, Chemistry. 1983

DOWNEY, Joyce
BS Bridgewater State College
EdM Boston University
Assistant Professor,
Physical Education. 1968

DOYLE, Virginia
BSN Boston College School of Nursing
MSHA Catholic University of America
MEd Fitchburg State College
Assistant Professor, Nursing. 1967

DRISCOLL, Rita
BS Clark University
MS Brown University
CAGS Brown University
EdD Nova University
Associate Professor, Nursing. 1964

DUFAULT, John
AB Assumption College
MS University of Massachusetts
PhD Boston College
Chairman and Professor, Psychology. 1972

FAGERHOLM, Lillian
BM Boston University
MM Boston University
Assistant Professor, Humanities. 1982

FANDREYER, Ernest
MA MSC University of Bonn
MS Marquette University
EdD Boston University
Assistant Professor, Mathematics. 1968

FARIAS, Joseph
BSEd Fitchburg State Teachers College
EdM Fitchburg State Teachers College
Assistant Professor, Industrial Arts. 1961

FEROCI, Anthony
BA Suffolk University
MA Middlebury College
Assistant Professor, Spanish. 1968

FINKEL, Joseph
AB University of Massachusetts
AM University of Chicago
Assistant Professor, English. 1969

FIORENTINO, Michael, Jr.
BSEd Fitchburg State College
MEd Boston University
EdD University of Massachusetts
Associate Dean Principal and Associate
Professor, Special Education. 1975

FISK, Elizabeth Ann
BSEd Fitchburg State College
MSN Boston University
MOE University of New Hampshire
Assistant Professor, Nursing. 1978

FITZGIBBON, William
BSEd Fitchburg State Teachers College
EdM Fitchburg State Teachers College

MNS Worcester Polytechnic Institute
Associate Professor,
Communications Media. 1953

FLYNN, Katherine
BSEd Fitchburg State Teachers College
MEd Fitchburg State Teachers College
CAGS University of Connecticut
Associate Professor,
Special Education. 1959

FOLEY, Robert A.
AB Stonehill College
MSL Western Michigan University
Associate Librarian. 1979

FRANCIS, Elaine E.
BSEd Fitchburg State College
MS Lesley College
Assistant Professor,
Special Education. 1978

FREDETTE, Norman
BS University of Massachusetts
MEd Harvard University
EdD University of Massachusetts
Associate Professor, Physics. 1967

FREDETTE, Sheila
BSEd Fitchburg State Teachers College
MS Medical-Surgical Nursing
EdD University of Massachusetts
Associate Professor, Nursing. 1974

FREEBURG, Donald
BS Pennsylvania State University
MA Bowdoin College
Assistant Professor, Mathematics. 1965

FRITZ, Robert
BFA Syracuse University
MA Columbia University
EdD Columbia University
Associate Professor, Art. 1961

GARDULA, Robert
BS Bridgewater State College
MA Clark University
PhD Clark University
Associate Professor, Geography. 1973

GARVIN, E. Arthur
AB Antioch College
MS Tulane University
PhD Washington University
Professor, Psychology. 1967

GASKINS, Leonard
BA Central State College
MM Boston University
CAGS Boston State College
Assistant Professor,
McKay Campus School. 1980

GAUMOND, John
BS Worcester State College
MEd Worcester State College
MA Syracuse University
Assistant Professor,
McKay Campus School. 1969

GAY, Carol
BA University of Chicago
PhD Washington University
Associate Professor, Psychology. 1977

GERECKE, Lillian
BS Simmons College
EdM Fitchburg State College
Assistant Librarian,
McKay Campus School. 1970

GIOVINO, Rosemarie
BS in Ed Lowell State College
EdM Boston University
EdD Boston University
Professor, Special Education. 1972

GIRLING, Paul
AB Ottawa University
BD Andover Newton Technological School
STM Andover Newton Theological School
MA University of No. Colorado
EdD University of No. Colorado
Professor, Psychology. 1968

GLIDEWELL, Richard
BA Northern Illinois University
MA Northern Illinois University
PhD Southern Illinois University
Associate Professor, Philosophy. 1973

GOMES, Lawrence
BA Northeastern University
MEd Boston College
EdD Boston University
Associate Professor,
Special Education. 1976

GRABAR, Terry
BA Wellesley College
MA University of Michigan
PhD University of Michigan
Chairman and Professor, English. 1970

GREEN, Anne
BA Emmanuel College
MEd Fitchburg State College
Associate Professor, Education. 1964

GREEN, Phyllis
RN St. Vincent Hospital
BS St. Louis University
MA Clark University
PhD Boston College
Associate Professor, Nursing. 1971

GREENE, Robert W.
BSEd Worcester State Teachers College
MEd Northeastern University
PhD University of Connecticut
Assistant Professor, Education. 1960

GREENE, Jeremiah E. Jr.
AB Maryknoll Seminary College
MS Simmons College
Associate Librarian. 1980

GRINSTEIN, Georges
BS City College of New York
MS New York University
PhD University of Rochester
Assistant Professor,
Computer Science. 1982

HAMBRIGHT, Jeanne
BS Millersville State College
Certificate Marburg University, Germany
MA Tufts University
PhD Tufts University
Associate Professor,
French and German. 1970

HANLEY, Mary
BA College of St. Catherine
MEd California State College
EdD Boston University
Professor, Psychology. 1974

HANSON, Erling
BSEd Fitchburg State Teachers College
EdM Worcester State College
Associate Professor, Industrial Arts. 1960

HARRELL, Sophia
BSN Winston-Salem State College
MS Boston University
MA Assumption College
Assistant Professor, Nursing. 1970

HARRIS, Irene
AB Oberlin College
MS Columbia University
MEd Boston University
PhD Boston University
Assistant Professor, English. 1983

HARTE, Lloyd M.
BSEd Fitchburg State College
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EdD University of Massachusetts
Assistant Professor,
Industrial Technology. 1978

HASLIP, Shirley
BA State University of New York
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MA University of Massachusetts
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Assistant Professor,
Political Science. 1983

HEBB, Douglas
AB Union College
AM University of California (Berkeley)
Assistant Professor, History. 1965

HEIRTZLER, Frank
BS Worcester Polytechnical Institute
MS University of New Hampshire
Instructor, Computer Science. 1981

HIGDON, Gerald
AB Villa Madonna College
MA University of Kentucky
PhD Lehigh University
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Associate Professor, Mathematics. 1977

HINES, Leo
AB Boston College
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PhD University of Wisconsin
Professor, English. 1969

HOGAN, Peter
BA University of Wales, U.K
Instructor, Behavioral Sciences. 1982

HOOS, Gunther
BA Lawrence University
Chairman and Assistant Professor,
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HOTCHKISS, Anita
BA City University of New York
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University of New York
Associate Professor, Psychology. 1981

HUMPHREYS, Catherine
BS Fitchburg State College
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Instructor, Nursing. 1981

IRWIN, Mark
BA Bucknell University
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ISAAC, Donald
BA City College of New York
MA Clark University
PhD Clark University
Professor, Psychology. 1971

JAMES, George
BA Fitchburg State College
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EdD University of Massachusetts
Professor, Industrial Technology. 1968

JAVORSKI, Joseph J.
BS United State Military Academy
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Assistant Professor, Military Science. 1984

JEFFKO, Walter
BS University of Bridgeport
MA Fordham University
PhD Fordham University
Professor, Philosophy. 1970

JELLISON, James
BS Northeastern University
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McKay Campus School. 1972

JOHNSON, Gerald R.
BS University of Massachusetts
MS Purdue University
Assistant Professor,
Computer Science. 1979.

KELLEHER, Robert
AB Syracuse University
MBA University of Detroit
Assistant Professor,
Business Administration. 1983

KEOUGH, William
AB Harvard University
MA Iowa University
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Professor, English. 1969

KIM, Won Hee L.
BS Yonsei University
MS Yonsei University
PhD New York University.
Assistant Professor, Nursing. 1983

KING, Mary A.
BSEd Worcester State College
MA Anna Maria College
CAGS Anna Maria College
Assistant Professor,
Behavioral Sciences. 1980

KINGSLEY, Howard
AB Oberlin College
AM Boston University
EdD Boston University
Professor, Education. 1974

KOKERNAK, Robert
BS Worcester Polytechnic Institute
MS Stanford University
PhD Worcester Polytechnic Institute
Associate Professor, Industrial Arts. 1974

KOLB, Liana
AB Douglas College
BSEd Fitchburg State College
MS Simmons College
MEd Boston University
Assistant Professor,
McKay Campus School. 1971

KRANE, Stanley
BS City College of New York
MS Michigan State University
PhD California Institute of Technology
Associate Professor, Biology. 1975

KRAUSS, Art
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Instructor, Communications Media. 1981

KRUCZEK, Elizabeth
BS in Ed Boston University
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Athletic Director and
Assistant Professor,
Physical Education. 1966

KRUSE, Richard
BA Dennison University
MEd Boston University
CAGS Boston University
Assistant Professor, Psychology. 1967

LANDER, Frits
BS Denmark's Engineering Academy
Instructor, Computer Science. 1982

LAPIERRE, Theodore
BE Plymouth Teachers College
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Professor, Computer Science. 1961

LAYTIN, Peter
BA University of Wisconsin
MA State University of New York at Buffalo
Associate Professor,
Communications Media. 1977

LEE, Robert R.
BS University of San Francisco
MA San Francisco State College
EdD Harvard University
Professor, Education. 1970

LERIT, Arthur
BS Queens College
MS University of Rochester
PhD City University of New York
Assistant Professor, Chemistry. 1980

LIGHT, Barry
BA Lebanon Valley College
MA Louisiana State University
EdD Pennsylvania State University
Chairman and Professor,
Mathematics. 1973

LOCKE, Norman C.
BS Boston University
MEd Boston University.
Associate Professor,
Communications Media. 1971

LORENZEN, Louis
BSEd Bowling Green State University
MEd Bridgewater State College
MATFA Assumption College
Associate Professor,
McKay Campus School. 1965

McALLISTER, Marie
AB Good Counsel College
MA Brown University
PhD Boston College
Assistant Professor, English. 1969

McANDREW, Claire
BA Marywood College
MA Georgetown University
EdD Lehigh University
Assistant Professor, Mathematics. 1983

McAVOY, Muriel
AB Radcliffe College
AM Boston University
PhD Boston University
Professor, History. 1965

McCABE, Donna-Lee
BS University of Rochester
MEd Boston University
Assistant Professor, Psychology. 1970

McCAFFREY, Marilyn
EdB Rhode Island College of Education
MA Brown University
EdD Boston University
Professor, English. 1971

McELLIGOTT, Terry
BSE Salem State College
MBA Revier College
Instructor, Business Administration. 1981

McGRAIL, John
AB Holy Cross College
AM Boston College
Assistant Professor, English. 1963

McGUIRE, Robert
BA St. John Fisher College
MS University of Kentucky
PhD University of Rochester School of
Medicine and Dentistry
Assistant Professor,
Computer Sciences. 1982

McKAY, Linda
BSN St. Anselm's College
MS Russell Sage
Instructor, Nursing. 1981

McKEON, John J.
ABA Worcester Junior College
BS Southern Illinois University
MS Southern Illinois University
Assistant Professor,
Business Administration, 1979

McSHEEHY, Bruce R.
AA Worcester Jr. College
BA American International College
MLS University of Rhode Island
MA Assumption College
Associate Librarian. 1979

McSHERRY, Francis
AB Clark University
MAT Assumption College
Assistant Professor,
McKay Campus School. 1968

MACRIDES, Patricia
BA Simmons College
MA Northeastern University
Assistant Professor, Sociology. 1973

MADDEN, Barbara Power
BS Boston College School of Nursing
MS Boston College School of Nursing
EdD Northeastern University
Chairman and Professor, Nursing. 1979

MAGNASCO, John
BS Boston University
EdM Boston University
EdD Boston University
Associate Professor,
Communications Media. 1970

MALONEY, David
BS Worcester State College
MA Assumption College
CAGS Assumption College
EdD Clark University
Professor, Psychology. 1970

MANEY, Elizabeth
BSEd Boston University
MEd Fitchburg State College
Assistant Professor,
McKay Campus School. 1958

MARKHAM, Frank B.
BSM Embry Riddle University
MBA Troy State University
Assistant Professor, Military Science. 1984

MARTENS, Edward
BS Massachusetts Institute of Technology
MS Massachusetts Institute of Technology
PhD Massachusetts Institute of Technology
Associate Professor, Industrial Arts. 1971

MAY, Ann
BSEd Fitchburg State College
EdM Boston College
CAGS Boston College
EdD Boston University
Chairman and Professor,
Special Education. 1956

MAY, Barbara
BS Boston College
Nursing Boston College
MEd Fitchburg State College
MS Boston University
Assistant Professor, Nursing. 1974

MAY, Elizabeth
BSEd Fitchburg State Teachers College
MSN Boston College
Associate Professor, Nursing. 1970.

MEANEY, John
BS University of Texas at El Paso
EdM Boston University
EdD Boston University
Associate Professor,
Communications Media. 1970

MELVIN, Harold
AB Harvard College
BD Episcopal Theological School
STM Harvard University
ThD Boston University
Professor, Sociology. 1970

MERRIAM, George
AB Clark University
AM Brown University
PhD Clark University
Professor, History. 1965

MICCICHE, Pasquale
BS Boston College
AB Boston College
MEd Boston College
MA University of Minnesota
PhD Boston University
Professor, History. 1969

MILLER, Frederick
BSEd Fitchburg State College
EdM Fitchburg State College
CAGS University of Connecticut
Assistant Professor, Industrial Arts. 1966

MILLER, George
BA Eastern Michigan University
MA Eastern Michigan University
PhD University of Michigan
Associate Professor,
Early Childhood Education. 1972

MILLER-JACOBS, Sandra
BA Queens College
MEd Boston University
EdD Boston College
Associate Professor,
Special Education. 1974

MINASIAN, Jane
BS Boston University
MS Boston University
CAGS Assumption College
Assistant Professor, Nursing. 1975

MIRANDA, M. Irene
BSEd Bridgewater State College
MA University of Massachusetts
Assistant Professor, English. 1965

MOON, John E.
AB Harvard College
MA Columbia University
PhD Harvard University
Professor, History. 1982

MORELAND, Hattie
BS Prairie View A&M College
MA University of Minnesota
CAGS University of Minnesota
EdD Boston University
Associate Professor,
Special Education. 1977

MORIARTY, William
BS Bentley School of Accounting
and Finance

MBA Suffolk University
Assistant Professor,
Business Administration. 1983

MORRILL, Thomas H.
BS Worcester Polytechnic Institute
MS Lehigh
PhD Boston University
Assistant Professor, Physics. 1982

MORRISON, Francis D.
AB University of Massachusetts
JD Boston College
Assistant Professor,
Business Administration. 1979

MRVICA, Ann R.
BAA Ryerson Polytechnical Institute
MEd Worcester State College
Instructor, Communications/Media. 1984

MURPHY, Caroline
AB Regis College
AM Clark University
PhD Clark University
Professor, Economics. 1971

MURPHY, George
BS in Business Administration
MBA Northeastern University
Chairman and Associate Professor,
Business Administration. 1976

NEUNHERZ, Rose Marie
BS Beaver College
MS Southern Connecticut State College
MS Northeastern University
Professor, Biology. 1967

NOLE, Barbara
BSEd Bridgewater State College
MSPE University of North Carolina
Assistant Professor,
Physical Education. 1970

NOONAN, James
BS Suffolk University
MBA Suffolk University
Instructor, Business Administration. 1981

NORTON, Donald
BA University of Connecticut
MA University of Connecticut
PhD Clark University
Professor, Social Sciences. 1969

OBERMEYER, Hellen
BFA Stephens College
MFA Rochester Institute of Technology
Assistant Professor,
Communications Media. 1981

O'CONNOR, Katherine
BSEd Fitchburg State Teachers College
MS Boston College
CAGS Boston University
Associate Professor, Nursing. 1962

O'FLAHERTY, Hellen
BA College of St. Teresa
MA Fordham University
PhD Fordham University
Associate Professor, Education. 1971

O'MALLEY, Alice
BA Anna Maria College
MA Clark University
PhD Clark University
Associate Professor, Biology. 1965

OUELETTE, Janice A.
BSE Westfield State College
MLS SUNY Albany
Library Associate. 1981

OVIAN, Lawrence A.
AB Bates College
EdM Pennsylvania State University
EdD University of Massachusetts
Associate Dean of Graduate and
Continuing Education, and Professor,
Education. 1971

PALLY, Erwin
BA University of Massachusetts
AM University of Massachusetts
AM Harvard University
PhD University of Massachusetts
Associate Professor, English. 1966

PASSIOS, Irene
BSEd Fitchburg State Teachers College
MEd Fitchburg State Teachers College
Assistant Professor, Education. 1954

PATTERSON, Frank
BA Trenton State College
MM Temple University
Assistant Professor, Music. 1968

PHELPS, Edson H.
AS Worcester Jr. College
BS Clark University
MEd Fitchburg State College
CAGS Fitchburg State College
Assistant Professor,
Industrial Technology. 1979

PICARD, Carol
BS Fitchburg State College
MS Boston College
Instructor, Nursing. 1981

PINET, Pierre
BA University of New Hampshire
MA University of Pennsylvania
MA Rivier College
Associate Professor, French. 1961.

POWERS, Francis
AB Maryknoll Seminary
MEd Boston College
EdD Boston College
Chairman and Professor,
Early Childhood, Elementary and
Secondary Education Department. 1964

QUIGLEY, Lawrence
BA Iona College
MA Fordham University
Phd Fordham University
Professor, English. 1968

RAPP, Donald
BA Eastern Washington State College
MEd Boston College
EdD Boston College
Associate Professor,
Special Education. 1977

RATNEY, Tanya E.
BA Yale University
MN Yale University
MS Boston University
Assistant Professor, Nursing. 1981

ROBINSON, Daniel
BS Fitchburg State College
PhD University of the Pacific
Chairman and Associate Professor,
Chemistry. 1977

ROSS, Elizabeth
AB Mt. St. Mary College
MEd Boston University
EdD Boston University
Professor, Education. 1969

RYDER, David
BSEd Fitchburg State Teachers College
MA University of Maryland
EdD Boston University
Professor, Communications Media. 1963

SANDBERG, Sonja
SB Massachusetts Institute of Technology
PhD University of Texas at Dallas
Assistant Professor, Mathematics. 1982

SCHARF, Jeannette
Licenciada en Literatura, University Nac.
Cordoba, Argentina
MA Queens College (CUNY)
Assistant Professor, Spanish. 1973

SCHIFFERLE, Judith
BS State University College at Buffalo
MEd Fitchburg State College
CAGS Boston University
Associate Professor,
McKay Campus School. 1971

SCHMIDT, Donald
BA State College of Iowa
MA State College of Iowa
PhD University of Iowa
Professor, Biology. 1967

SCHOFIELD, William K.
BA So. Connecticut State College
MS So. Connecticut State College
MEd University of Illinois
PhD University of Illinois
Assistant Professor,
Special Education. 1981

SCHONBECK, Harold
BS University of Connecticut
MBA Clark University
CPA
Assistant Professor,
Business Administration. 1977

SEAVOR, Carol
BS Fitchburg State College
MSN Boston University
Assistant Professor, Nursing. 1977.

SEMERJIAN, Harry
BM Boston University College of Music
MA Boston University
EdD University of Massachusetts
Professor, Music. 1960

SEMPREBON, Gina M.
BA American International College
MEd University of Lowell
Instructor, Biology. 1983

SGAN, Mabel L
BA University of Hawaii
MA University of Hawaii
PhD Cornell University
Associate Professor,
Behavioral Sciences. 1978

SHAUGHNESSY, Robert
BSEd Fitchburg State Teachers College
EdM Fitchburg State Teachers College

MNS Worcester Polytechnic Institute
Associate Professor,
Computer Science. 1966

SHEEHAN, James
BS Boston University
EdM Boston University
Assistant Professor,
Physical Education. 1973

SHEPHERD, Louis
BSEd Kansas State Teachers College
of Emporia
AM Columbia University
Associate Professor, English. 1952

SICKUL, Caryl
BA Hofstra College
MSE Queens College
MMT Antioch College
Assistant Professor,
Physical Education. 1981

SJOBERG, Eileen
BS Fitchburg State College
MSN University of Massachusetts
Assistant Professor, Nursing. 1976

SONIER, Jeanne R.
Diploma, Worcester Hahnemann Hospital
School of Nursing
BS Worcester State College
MS Boston College
Instructor, Nursing. 1982

SPENCER, Richard
BA Alfred University
MA Alfred University
PhD State University of New York
at Buffalo
Associate Professor, Psychology. 1972

STEELE, Sheila
BS Fitchburg State College
MEd Fitchburg State College
Instructor, Biology. 1982

STREFF, Charles
BA Mt. Carmel College
MA Mt. Carmel College
MA Boston College
PhD Boston College
Professor, Psychology. 1973

STRONG, Robert
BA Central Washington State College
MS Oregon State University
PhD University of the Pacific
Associate Professor, Chemistry. 1973

SULLIVAN, Brian F.
BA Northeastern University
MSEd Boston State
Assistant Professor,
Military Science. 1981.

TAPPLY, Robert
BSEd Fitchburg State Teachers College
EdM Fitchburg State Teachers College
Assistant Professor, English. 1966

TARDANICO, Philip
BSEd Fitchburg State College
MEd Boston State College
EdD Temple University
Chairman and Associate Professor,
Industrial Technology. 1978

TAYLOR, Margaret
BSN New York University
MSN Boston University
DnSc Boston University
MEd Fitchburg State College
Professor, Nursing. 1966

TAYLOR, Rowena
BSEd Fitchburg State Teachers College
MA Assumption College
MS Boston College
Assistant Professor, Nursing. 1968

THERRIEN, Steven P.
BSE Fitchburg State College
MNS Worcester Polytechnic Institute
Instructor, Industrial Technology. 1981

THOMAS, Edmund
BS John Carroll University
MA Kent State University
PhD Clark University
Professor, History. 1967

THOMAS, Howard
BS State University of New York
at Geneseo
MS Adelphi University
PhD Northeastern University
Assistant Professor, Biology. 1981

TOWER, Cynthia
BA Western College for Women
MSW University of Connecticut
Assistant Professor,
Behavioral Sciences. 1978

TRIFILO, Richard
BA Fitchburg State College
BS University of Massachusetts
MS Boston College
Instructor, Nursing. 1983

TRUMMEL, Paul
MIOP Graduate of the London College of Printing
MIPR Member of the Institute of Public Relations
MIOJ Member of the Institute of Journalists
FIOP Fellow of the Institute of Printing
Assistant Professor, Industrial Technology. 1984

TURK, Michael
AB Princeton University
MA Harvard University
PhD Harvard University
Assistant Professor, Economics. 1982

VAGHAR, Soudabeh
BS University of Oregon
MA Clark University
Instructor, Mathematics. 1982

VALANEJAD, Esmail
BS University of Birmingham (England)
PhD Princeton University
Chairman and Professor, Physics. 1968.

VINSKEY, Mildred
BS Worcester State College
MEd University of Massachusetts
EdD University of Massachusetts
Professor, McKay Campus School. 1967

VISNOVSKY, Robert
BS United States Military Academy
MA University of Southern California
Assistant Professor, Military Science. 1983

VOSTOK, Gary
BS Clark University
MBA Babson College
CPA
CMA
Assistant Professor, Business Administration. 1979

WALLEN, Andrea
BS San Francisco State University
MS University of California
Assistant Professor, Nursing. 1974

WELCH, Robert
BS Emerson College
MS Emerson College
PhD Pennsylvania State University
Associate Professor, Speech. 1968

WELLENS, Charles H.
BS San Diego State College
MBA Bryant College.
Instructor, Business Administration. 1983

WESCOTT, Jack
BS Western Michigan University
MA Western Michigan University
PhD University of Maryland
Associate Professor, Industrial Arts. 1976

WIEGERSMA, Nancy
BS University of Maryland
MA University of Maryland
PhD University of Maryland
Associate Professor, Social Sciences. 1979

WILSON, Charles R.
BS Lowell Technological Institute
MS University of Lowell
MEd Fitchburg State College
CAGS Fitchburg State College
Assistant Professor, Computer Science. 1982

YEE, Nancy
BA Catholic University
MA Catholic University
English. 1981

WOODS, Eini
Massachusetts Professional Library Certificate
Library Associate. 1966.

ZIDE, Michele
BA Mount St. Mary College
MS Boston College
EdD University of Massachusetts
Associate Professor, Special Education. 1973

ZOTTOLI, Robert
BA Bowdoin College
MS University of New Hampshire
PhD University of New Hampshire
Professor, Biology. 1965

Part-Time Faculty

AUSTIN, Sandra
BSN University of Virginia
MSN University of California
Part-time Instructor, Nursing. 1976

CONSOLATTI, Gail
MSN Boston University School of Nursing
BSN Texas Christian University
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JELLINEK, Marie
BS Boston College
MS Boston University
Part-time Instructor, Nursing. 1983

KRESSY, Jean
BS Columbia University
MS University of Massachusetts
Part-time Instructor, Nursing. 1973

MAC LEAN, Marianne
MS Boston College
BS University of Connecticut
School of Nursing.

MARION, Mildred
BSEd Fitchburg State College
MA Assumption College
Instructor, Nursing. 1972

MIZHIR, Judith
BS Boston University School of Nursing
MS Boston University School of Nursing
Part-time Instructor, Nursing. 1974

POWERS, Barbara
BS Nursing, University of North Carolina
MS Boston College
Instructor, Nursing. 1974

ROGERS, Helen
BS Boston College
MS Boston College
Part-time Instructor, Nursing. 1981

SHAW, Elizabeth
BS Skidmore College
MS Boston University
Part-time Instructor, Nursing. 1982

Clinical Faculty

BRAVO, Gloria
AB Worcester State College

CORREIRA, Paula
BS Southern Massachusetts University

DiNINNO, Donna
BS Fitchburg State College

HANCHAY, Edward J.
BS University of Massachusetts

LAKOMA, Dorothy
BA College of Our Lady of the Elms
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POLLOCK, Anne
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SURRETTE, Susan
BS Merrimack College
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EdM Professor Emerita of Education

CONLON, Michael J.
AD, MA Professor Emeritus of Philosophy

COX, Catherine
AM Professor Emerita of Geography

CUSHMAN, Marion B.
MEd Professor Emerita of Education

DEAN, Veva K.
PhD Professor Emerita of Geography

DONAVAN, Ruth M.
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DONNELLY, Edward T.
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DRISCOLL, Adele M.
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DRISCOLL, Edward F.
PhD Professor Emeritus of Industrial Arts

ELLIOTT, Robert G.
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FISKE, Gertrude L.
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HAGUE Clifford W.
EdM Professor Emeritus of Industrial Arts

HARRINGTON, Arthur C.
AM Professor Emeritus of History

HARROD, Walter F.
EdM Professor Emeritus of Industrial Arts

HASKINS, Elizabeth M.
MS Professor Emerita of Mathematics

HEALY, Daniel L.
EdM Professor Emeritus of English

HOBBS, Alfred
EdM Professor Emeritus of Industrial Arts

HOFFMAN, Ruth F.
BS Professor Emerita

KOEHLER Everett E.
AM Professor Emeritus

KRAWIEC Bernice M.
MS Professor Emerita of Nursing

LANDALL, Lawrence
BS Professor Emeritus of Industrial Arts

LENAWAY, Sr. Mary Albert
PhD Professor Emerita of Education

LYSTILA, Doris V.
MEd Professor Emerita of Education

McDOWELL, Margaret M.
MEd Professor Emerita of Education

McMURRAY, Philip A.
EdM Professor Emeritus of Education

O'CONNOR, M. Elizabeth
MEd Professor Emerita of Education

PHILBIN, Anna
EdM Professor Emerita of Education

PHILLIPS, Belle Nixon
EdM Professor Emerita of English

QUATTLANDER, Elizabeth
EdM Professor Emerita of Education

ROACHE, Mary L.
EdM Professor Emerita of Education

SEHL, Katherine N.
EdD Professor Emerita of Nursing

SIMMONS, Anna G.
AM Professor Emerita of Geography

SIPILA, Signe Antila
EdM Professor Emerita of Education

STEFFANIDES, George F.
EdM Professor Emeritus of Biology

TATER, Lillian
EdM Professor Emerita of English

WOLF, Frank E.
EdD Professor Emeritus of Biology

Academic Glossary

Baccalaureate The Bachelor's Degree; traditional first step on the ladder of higher education. It is characterized by a four year program which blends courses aimed at prompting the breadth of knowledge through General Education (historically, the liberal education) with courses designed to give depth of understanding in the major field.

Carnegie Unit The unit of work expected of students for each college credit. The College expects students to spend 45 hours of work for each credit. The most common break down for one credit is one hour of class work and two hours of homework for fifteen weeks each semester. A three credit course demands nine hours of work each week.

CLEP The College Level Examination Program by which up to 60 semester hours of credit may be earned towards the degree. For details, see, "Alternative Programs."

Credits Arithmetic representation of the value of completed course work towards the degree requirements. One classroom hour and two hours of homework for the nominal fifteen week semester usually counts for one credit. As the usual course responsibility requires three classroom hours per week, per semester, and six hours of work outside the classroom, the normal yield per course is three credits. Tradition and practice in the case of laboratory, studio, shop and other practica awards

proportional credit for hours of attendance.

Department An administrative subdivision of the faculty. Sometimes the department is identical with a discipline category such as English or Mathematics. Departments such as Behavioral Sciences, Humanities, and Social Sciences represent an association of faculty members of related disciplines.

Track That subdivision of academic programs which constitutes a unit of professional competence. Suggestive of the complexity of identifications involved in only one Department, consider the example of Business Administration. This program includes tracks in Accounting, Management, Labor Relations and Marketing. The candidate should clarify with his/her advisor and Major Department track in which he/she is interested in pursuing.

Electives Those course selections by the candidate which are not predetermined by graduation, Major, or Minor requirements.

General Education Befitting the Baccalaureate tradition and current practice, the Fitchburg State College candidate is required to complete a minimum of 60 credits in a distribution of courses involving the sweep of disciplines at the College. For details, see, "General Education."

Major That structured experience in an academic field which constitutes the candidate's specialization. All degree programs require a Major; there are three options open. As considerable variation exists as to prerequisites and total credits, the candidate must carefully study the structure of the Major of her/his choice. For details of Major requirements, see, "Courses and Programs...."

Minor That structured experience in a related Discipline/Field which is recognized by the Major Department as supportive of the candidates specialization. Minors are defined by the Academic Department offering them. As considerable variation in requirements exist the candidate should study carefully the Minor offerings, see, "Courses and Programs...."

Prerequisite Those courses which must be satisfactorily completed before admission to certain other courses which require them. Prerequisite courses are listed in the course description of the course requiring them. Again, see, "Courses and Programs...."

Program That construct of General Education, Major, Minor, and/or professional courses which satisfy the requirements for a particular degree.

Self-Help Self-Help is in the form of loans and work.

Style Manual The Modern Language Style Manual for writing is the official style manual for Fitchburg State College unless modified by individual departments for needs particular to their discipline.

Waiver of Regulations Recognizing inappropriateness of rigidity in endeavors to promote its goals, the College provides for waiver procedure relative to its baccalaureate rules, regulations and programs. All petitions for waiver of regulations begin with the Office of the Undergraduate Dean. The student should note that reasons for waiver must be as exceptional as the grant.

Return After Withdrawal A student who withdraws from the College "in good standing" without completing her/his baccalaureate studies may return to the College. Application is made to the Registrar. To insure return at the time desired, the student should file her/his request before May 1 for the Spring semester.

"Good Standing" involves the student's previous record; academic, financial and social. The last is determined by the Judicial Board.

College Style Manual Standard
The Modern Language Association Style Manual is the official standard for the College. Except wherein a Program or Department has specifically designated some other standard as more relevent to its Fields, composition shall adhere to the official standard.

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Directions to Fitchburg State College

Approach Fitchburg from **Route 2** (either East or West). Take the **Route 12 exit** and head toward Fitchburg. At the **second traffic light** (approximately 1.5 miles from Route 2), take a **right hand turn.** This is Bemis Road which connects with the John Fitch Highway. Follow the Green and White Fitchburg State College signs which are positioned on posts and poles about ten feet off the ground. As a sign will indicate, take a **left turn** onto **Pearl Street** and proceed several blocks to the College.

BY BUS: Bus Service is available from all sections of Massachusetts. From the East, take a bus to the Greyhound Terminal in Boston, where you can get a bus direct to Fitchburg. From the West, take a bus to Springfield (and connect with Peter Pan to Fitchburg) or to Pittsfield (and connect with Greyhound to Fitchburg). From central Massachusetts, buses run regularly from Worcester to Fitchburg. All buses stop in downtown Fitchburg at the station located on the corner of Day Street and Main Street.

FROM BUS TERMINAL: You may take a taxi or walk. If you walk from the bus station, go east on Main Street two blocks, turn left onto North Street and walk about one-half mile to Fitchburg State College Campus.

FITCHBURG STATE COLLEGE
160 PEARL STREET
FITCHBURG, MASSACHUSETTS
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